Strategic Governance and Finance Study

PREPARED FOR:

North Dakota State Water Commission

AE2S Project

No. P00527-2020-001

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Report- Final Draft

AE2S NEXUS
The Financial Link

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1. INTRODUCTION

1.1. Background of the Study

This study includes the analysis of four major regional water systems in North Dakota (See Figure 1.1). A regional water system is defined as "a system that provides water to at least four public water systems and may also include rural water users" (North Dakota Administrative Code § 89-12-01-01). Regional water systems analyzed in this study include the Southwest Pipeline Project (SWPP), the Northwest Area Water Supply Project (NAWS), the Western Area Water Supply Project (WAWS), and the Red River Valley Water Supply Project (RRVWSP).

Historically, the governance structure of the four major regional water systems was a product of the time the system itself was created and each has received funding from the State Water Commission (SWC) based on the cost-share policy in place at the time of the request. Due to each project's unique circumstances, there have been "inequities in regard to the project governance, authority, infrastructure ownership, responsibility, and the State cost-share framework." (Source: Strategic Governance and Finance Study for Regional Water Systems in North Dakota Request for Proposal (RFP))

These inequities, along with the time between when each project was developed, have resulted in an evolving state cost-share policy that has seen 17 iterations since 2005 with water supply projects receiving anywhere from 35% to 75% state cost-share or higher. This variation has made it challenging to budget for future needs at the state level and for local sponsors of the projects to understand what their financial commitment may be long-term.

"In October 2018, the SWC requested proposals from qualified firms to conduct an independent case study of the SWPP. The study's purpose was to determine the advantages and disadvantages of the SWPP governance and finance model. As the study progressed, the SWC determined that additional information could be used to assist the state in developing an equitable governance and finance framework for SWPP and the other regional water systems." (Source: RFP)

In September 2020, the SWC selected the team consisting of AE2S Nexus, Ohnstad Twichell, and Ernst & Young Infrastructure Advisors to conduct a comprehensive study of Strategic Governance and Finance of the four main regional water systems in North Dakota.

1.2. Objectives of the Study

The primary objective of this study was "to perform a comparative analysis of alternative frameworks for the governance and finance of regional water systems. Additionally, the study is expected to provide guidance for a recommended governance and finance framework for future regional water systems. The alternatives must be evaluated by metrics which seek to identify the

most cost-effective use of limited state financial resources and the alternatives considered should not be bound by historic constraints." (Source: RFP)

Several factors, including, but not limited to, the following were considered:

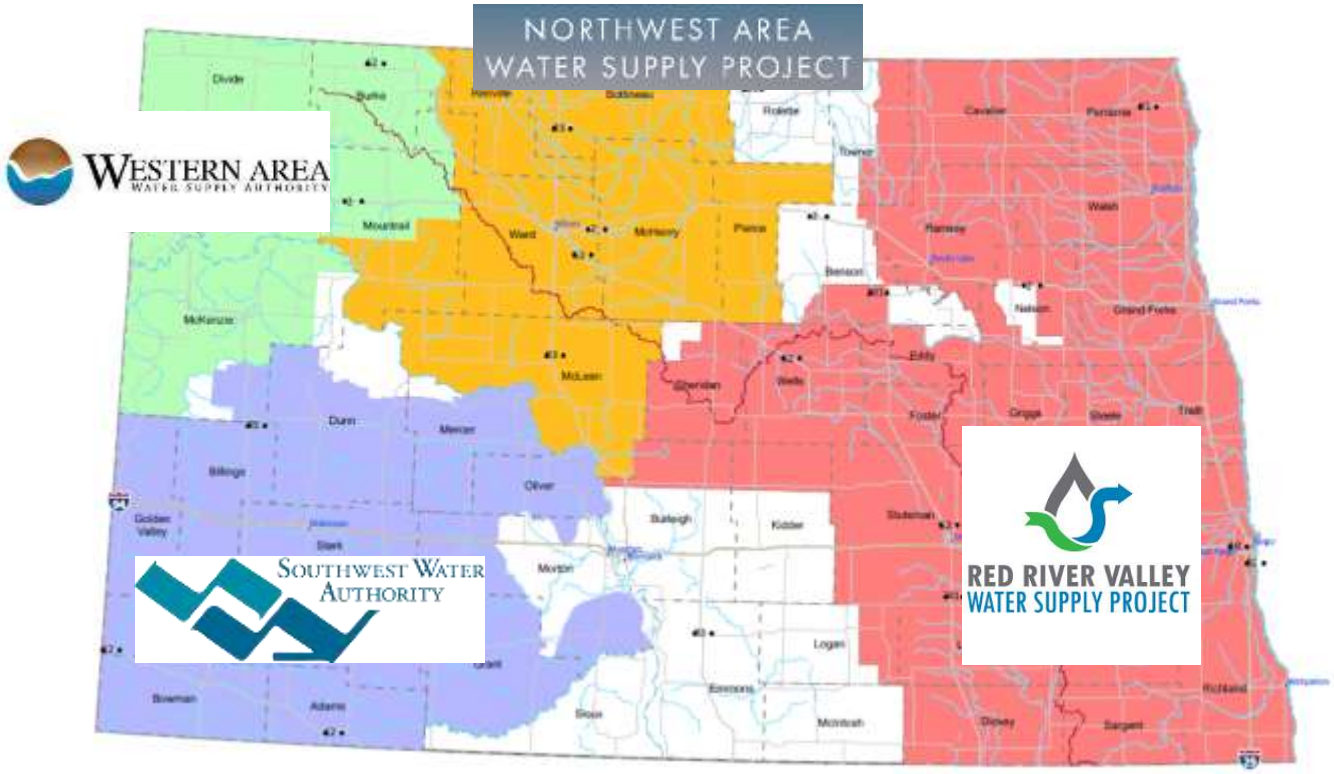
- Current Governance Model
- State and Local Cost of Capital
- Efficient Use of State Resources
- Local Affordability
- Alternative Delivery Models
- Legal Authorities
- Historical SWC Cost-Share Policy
- Equity and Consistency Amongst Systems
- Legislative and Agency Consensus
- Ability to Implement

An analysis was performed to determine how to efficiently and sustainably implement the preferred structural framework identified. A secondary focus of the study was to evaluate and outline the necessary steps required and changes to the North Dakota Century Code (NDCC) needed to migrate the existing regional water systems to a preferred governance and finance framework.

1.3. Department of Water Resources

As a result of House Bill 1353 passed during the 2021 legislative session, on August 1, 2021 the Department of Water Resources will be the primary state water agency, replacing the SWC. Due to the timeline of this study, SWC is used as the primary state identified agency. Going forward, many of the actions, recommendations, and other considers identified in relation to the SWC may be referred to the Department of Water Resources.

Figure 1.1 – North Dakota's 4 Major Regional Water Supply Projects



2. EXISTING PROJECTS OVERVIEW

2.1. State Cost-share of Regional Water Systems

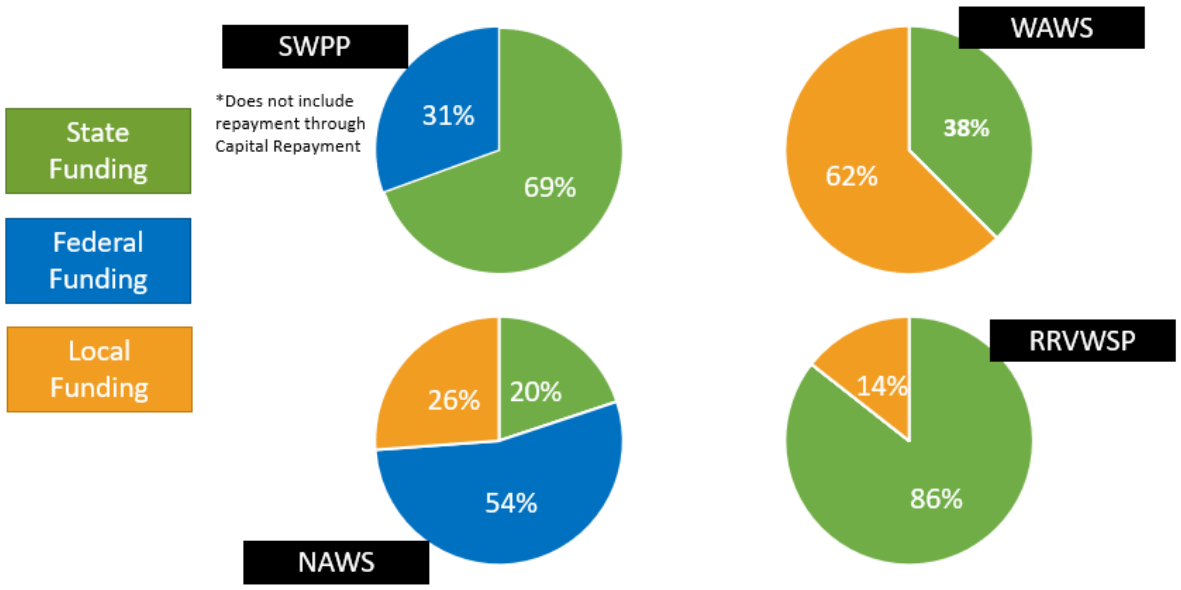
The differing conditions regarding the four major regional water systems in North Dakota have resulted in different cost-share policies applied to each project to date. (see Table 2.1, which shows the cost-share comparing local participation to state, and to state & federal)

Table 2.1 - Total Approved State Cost-share Funding (through 19-21 Biennium, in millions)

	Federal (Including MR&I)	State	Local	Cost-share State	Cost-share State & Federal
SWPP	$122.2	$257.8	$0*	69%*	100%*
NAWS	$146.4	$54	$71	20%	74%
WAWS**	$0	$141	$234.8	38%	38%
RRVWSP	$0	$69.5	$11.7	86%	86%
Total:	$268.6	$548.2	$317.8		

(Source: 2021 Water Development Plan, SWC Financials, and data from project representatives)
***Does not include repayment through Capital Repayment**
**** Does not reflect the 2021 legislative approval of $74.5M in industrial debt service.**

Figure 2.1 - Approved Cost-share Funding by Project (through 19-21 Biennium)



(Source: SWC Financials and data from project representatives)
*** SWPP cost-share does not include repayment through Capital Repayment - $79.42M through February 2021**

2.2. Regional Water Supply Projects Funding Summary

The following summaries of the four major water supply projects were developed utilizing multiple sources, including the 2021 Water Development Plan, information from project representatives, and other resources developed by or for the SWC.

2.2.1 Southwest Pipeline Project

Authorized by the North Dakota Legislature in 1981, the Southwest Pipeline Project (SWPP) transports raw water from Lake Sakakawea to Dickinson and Zap where it is treated and delivered to SWPP's customers in southwest North Dakota and Perkins County, South Dakota. Since construction began in 1986, the SWPP now includes 3 water treatment plants, 35 pumping stations, 31 water storage reservoirs, and over 5,000 miles of pipe.

Southwest Pipeline Project

"…created under the NDCC Chapter 61-24.3. It was established to provide for the supplementation of the water resources from the Missouri River for multiple purposes, including domestic, rural, and municipal uses."

Per the 2021 Water Development Plan; capital repayment is a portion of the water rate charged by the Southwest

Water Authority (SWA) to pay back the cost of construction of the project. While SWPP has been a substantial investment for the State of North Dakota, the project continues to pay dividends back to the state. Under current policy, these capital repayments will be made in perpetuity.

Table 2.2 - SWPP History of State Funding Expenditures (in millions)

	Pre-1995	1995-1997	1997-1999	1999-2001	2001-2003	2003-2005	2005-2007
State	$26.5	$2.8	$1.0	$5.9	$8.0	$5.9	$6.7
Local*							
Capital Repayment	$0.9	$1.4	$2.67	$2.3	$3.74	$4.22	$4.40

	2007-2009	2009-2011	2011-2013	2013-2015	2015-2017	2017-2019	2019-2021**
State	$6.2	$5.5	$17.0	$58.5	$66.4	$36.5	$10.9
Local*							
Capital Repayment	$5.57	$7.06	$8.30	$9.90	$9.30	$10.30	$9.10

(Source: SWC Financials and data from project representatives)
***Does not include repayment through Capital Repayment**
**** 2019-2021 Expenditures are through February 2021**

2.2.2 *Northwest Area Water Supply Project*

Owned by the State of North Dakota and overseen by a 9-member advisory committee, Northwest Area Water Supply's (NAWS) purpose is to deliver Missouri River water to residents in north central North Dakota. It is expected that NAWS will be capable of delivering a maximum daily flow of 27 million gallons per day to approximately 81,000 people.

Northwest Area Water Supply

"…created under the NDCC Chapter 61-24.6. It was established to provide for the supplementation of the water resources from the Missouri River for northwestern North Dakota."

NAWS was authorized by the federal government through the Garrison Diversion Reformulation Act of 1986 and the Dakota Water Resources Act of 2000. In 1991, the North Dakota Legislature created the NAWS Advisory Committee and authorized the SWC to pursue the project. Since 2002, lawsuits and funding uncertainty have slowed construction of NAWS, but litigation resulted in a successful conclusion in 2019.

Table 2.3 - NAWS History of State and Funding Expenditures (in millions)

	Pre-2007	2007-2009	2009-2011	2011-2013	2013-2015	2015-2017	2017-2019	2019-2021*
State	$6.3	$4.5	$6.5	$12.2	$1.4	$3.2	$4.9	$7.6
Local	$12.2	$7.8	$5.0	$7.7	$0.5	$1.3	$6.4	$11.6

(Source: SWC Financials and data from project representatives)
*** 2019-2021 Expenditures are through February 2021**

2.2.3 *Western Area Water Supply Project*

Owned and operated by the Western Area Water Supply Authority (WAWSA), the Western Area Water Supply (WAWS) project utilizes a combination of Missouri River water treated at the Williston Regional Water Treatment Plant and groundwater treated by the R&T Water Supply Commerce Authority's Water Treatment Plant in Ray.

Western Area Water Supply

"...created under NDCC Chapter 61-40. It was established to provide for the supply and distribution of water to the people of western North Dakota for purposes including domestic, rural, municipal, livestock, industrial, oil and gas development and other uses."

As originally planned after the 2011 Legislative Assembly, the financial model for WAWS was to take advantage of the extensive regional growth that was taking place because of oil production and fund the majority of the project by selling excess water to the energy industry. Since the inception of WAWS, the legislature has had to revisit the funding model during multiple legislative sessions, including mostly recently the recognition of the significant reimbursement of $74.5M in industrial debt service that was approved during the 2021 legislative session. To reflect this recent update, the financial analysis performed in this study were adjusted to reflect the updated local/state cost-share more accurately.

Table 2.4 - WAWS History of Expenditures (in millions)

	2011-2013	2013-2015	2015-2017	2017-2019	2019-2021**
State	$0	$39.5	$60	$20.0	$21.5
Local*	$110	$79.5	$20	$16.5	$8.8

(Source: SWC Financials and data from project representatives)
***Local portion is paid through loan amounts, including loans from State Water Commission, Bank of ND, the ND General Fund, and DWSRF**
**** 2019-2021 Expenditures are through February 2021**

2.2.4 *Red River Valley Water Supply Project*

The Red River Valley Water Supply Project (RRVWSP) was first initiated as a collaborative federal, state, and local project. The Dakota Water Resources Act of 2000 authorized the RRVWSP to provide a reliable supply of quality drinking water to the Red River Valley. A federal Environmental Impact Statement (EIS) was released for the original project in 2007, but a record of decision was never signed. By 2013 it was apparent the project would not receive federal authorization, so a new plan proceeded.

Red River Valley Water Supply Project

"...created under NDCC Chapter 61-24.7. It was established to provide water of enough quantity and quality for various uses in the Red River Valley, specifically as a supplemental water supply in times of drought."

The current version of the project is a state- and locally-sponsored option that proposes to transport Missouri River water to central and eastern North Dakota. The water will be carried via pipeline from an intake site near Washburn, and then east along Highway 200 to the Sheyenne River, just north of Valley City. When developed, the RRVWSP will be owned by the Garrison Diversion Conservancy District (Garrison Diversion).

Table 2.5 - RRVWSP History of Expenditures (in millions)

	2013-2015	2015-2017	2017-2019	2019-2021
State	$3.6	$12.4	$17.0	$16.4*
Local	$0.5	$0.0	$1.9	$2.6*

(Source: 2021 Water Development Plan, SWC Financials, and date from project representatives)
NOTE: Garrison Diversion and Lake Agassiz Water Authority (LAWA) incurred approximately $3.8m additional local costs leading up to the value engineering effort that began in 2013.
*** 2019-2021 Expenditures are through February 2021**

2.3. Identifying Future Regional Water Supply Funding Needs

North Dakota has made great progress with the over $500 million in funding appropriated to the four major water supply projects through the 2019-2021 biennium. The SWC worked closely with project sponsors to identify future funding needs through the creation of the 2021 Water Development Plan (see Table 2.6). The long-term funding need estimates for water supply amounts to nearly $3 billion and accounts for 59% of the state's future funding needs. (See Figure 2.2). This means there are still significant challenges ahead to meet the needs.

Table 2.6 – 2021 Water Development Plan

Estimated 10-Year Water Project Funding Needs (in thousands)

	State	Local	Federal	Total 10-Year Cost
Water Supply*	**$2,027,300**	**$780,100**	**$82,000**	**$2,889,400**
SWPP	*$206,000*	**	-	*$206,000*
NAWS	*$69,200*	*$9,300*	*$82,000*	*$160,500*
WAWS	*$93,000*	*$38,000*	-	*$131,000*
RRVWSP	*$892,000*	*$298,000*	-	*$1,190,000*
Other Water Supply	*$767,100*	*$434,800*	-	*$1,201,900*
Flood Control	**$932,900**	**$929,000**	**$737,000**	**$2,598,900**
Other Flood Control & Conveyance	**$98,300**	**$121,800**	**$8,000**	**$228,100**
General Water	**$50,000**	**$35,000**	**$74,000**	**$159,000**
Agency Operations	**$320,000**	**-**	**-**	**$320,000**
Total	**$3,428,500**	**$1,865,900**	**$901,000**	**$6,195,400**

(Source: 2021 Water Development Plan, and staff updates. Does not include updates from 2021 Legislative Session)

***Includes Municipal and Rural Water for Summary Purposes**

** **Does not include repayment through Capital Repayment**

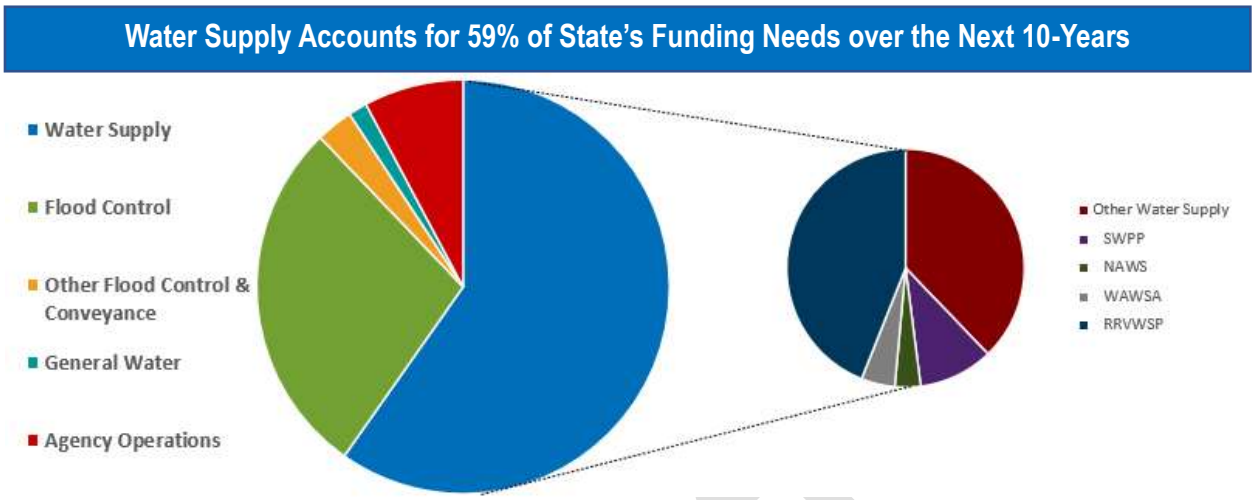


Figure 2.2 - Regional Water Systems Share of 10-Year Need

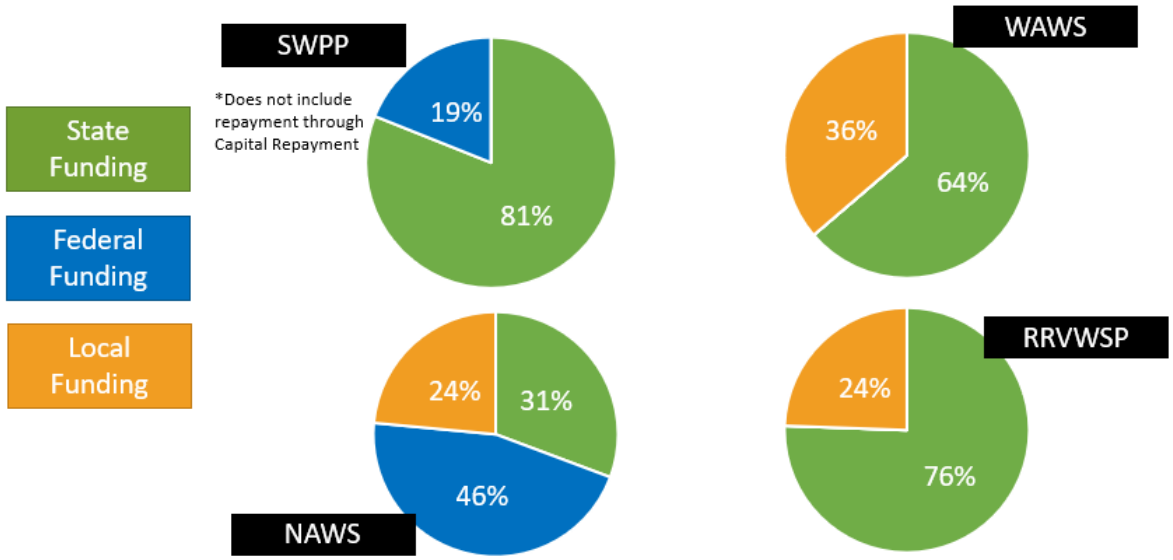
(Source: 2021 Water Development Plan, and staff updates. Does not include updates from 2021 Legislative Session)

2.4. Recognizing Future Inequities in Cost-share through Project Completion

Inequities in state funding and local repayment requirements have resulted in the current cost-share amounts to these regional systems, however, without addressing some of the structural issues that created these inequities, future cost-share will be similarly impacted. Applying current cost-share policies through completion means that the four regional projects will face scenarios varying from no direct cost-share[1] up to a 39% local cost-share (see Figure 2.3). It becomes clear that state cost-share policy should be strongly considered, in addition to governance models, when looking to achieve a greater sense of equity across regional systems.

[1] The SWPP indirectly contributes to overall project costs through a capital repayment mechanism.

Figure 2.3 - Projected Cost-Share Funding by Project (through Project Completion)



(Source: SWC Financials and data from project representatives)

*** SWPP cost-share does not include repayment through Capital Repayment - $79.42M through February 2021**

3. STAKEHOLDER ENGAGEMENT

The development of this study was made possible through a series of engagement from stakeholders. Four key stakeholder groups were identified early on through the RFP and subsequent development of the study outline: the SWC, the Study Team, the Governor's Office, and project representatives from each of the four Regional Water Supply Projects.

Each of these groups provided valuable insight and experience. Special appreciation is given to the Study Team, which includes two liaisons from the SWC, Commissioners Mark Owan and Jay Volk. In addition, Sindhuja S. Pillai-Grinolds, Jonathan Kelsch, and Tim Dodd from the SWC Staff were also members of the Study Team.

Much of the data utilized in this study was sourced from the 2021 Water Development Plan and other financial information supplied to the SWC. The collection of data would not have been possible without communication and coordination with SWC staff and project representatives from the four water systems identified in the study.

The stakeholder engagement that took place during the development of the study was done with the understanding that additional outreach will likely be needed to accommodate potential next steps, including coordination with members of the Legislative Assembly and continued coordination with the four regional water systems on the recommendations presented herein.

4. DELIVERY MODEL/FINANCING OPTIONS EVALUATION

4.1. Summary of Funding, Financing, and Delivery Options Available

A main objective of the study was to perform an analysis of financing and delivery approaches that are available for the four major regional water supply projects to efficiently and sustainably implement the preferred structural framework that is identified from the study analysis. Multiple financing and delivery options are available to water projects in North Dakota at both a state and local level to successfully implement water supply capital projects. With this study, the consultant team prepared a white paper (Primer) to identify potential federal, state and local funding and financing options for large water projects, and to identify potential contracting structures for the delivery of such projects. The developed Primer is not intended to provide any recommendation to the SWC regarding these options or relating to specific water projects in the state but will generally inform discussion and consideration of different delivery and funding structures in the context of specific projects as part of the broader study. The Primer document is attached as Exhibit A to this report and is generally summarized as follows by section:

1. **Glossary of Terms:** The world of water project finance and delivery is filled with unique terms and acronyms. This section of the Primer outlines a broad list of terms that are applicable to the Primer content.
2. **Potential contracting and delivery models:** This section discusses the range of potential contracting and delivery models that can be applied to large water infrastructure projects, categorized as follows:
    a. Traditional delivery — most projects to date have awarded contracts for the design/development, construction, operation, and maintenance of water infrastructure on a discrete basis via individual procurement processes, or in some cases identifying a single contractor or general project manager to oversee such processes, albeit not taking any material delivery risk.
    b. Alternative delivery — A number of contracting models combine multiple phases of project development to be awarded via a single procurement process, with the selected entity responsible for the delivery of those phases and associated risk and reward of doing so.
    c. Public-Private Partnerships (or "P3") — there is no single agreed definition of P3, but for the purposes of this Primer, P3 structures are ones that:
        i. Are long-term performance-based contracts that allocate risks to the party best suited to manage them,
        ii. Combine responsibility for design, build, and operations and substantially allocate this responsibility to the private sector,

iii. Link private sector financial outcomes to contractual performance specifications, and
iv. Typically include some element of private financing to reinforce performance risk transfer.

3. **Project Funding and Financing Options:** This section of the Primer sets out the potential sources of funding and financing that may be available to meet the upfront capital costs associated with large water infrastructure projects in North Dakota. Though often used interchangeably, the distinction between funding and financing sources can have important implications for project deliverability and affordability. Different sources of funding and financing are available through public sector agencies or conduits at a federal and state level, as well as at a local level through the municipalities or districts benefitting from a particular project. There is also a growing interest in alternative sources that involve a greater role for private capital or credit enhancement tools. It is increasingly the case that a hybrid of different funding and financing sources is required to deliver large water projects in the US as exemplified by the level of interest and use of the federal WIFIA and SWIFIA programs.
4. **Example Case Studies:** This section of the Primer provides a summary of six large water infrastructure projects in the US and globally that are related to regional water supply needs. As such, they are particularly relevant to the four major water supply projects that the SWC is currently charged with delivering. These example projects have deployed a range of contracting and financing structures, focusing particularly on alternative and P3 delivery as an emerging trend. These case studies reflect delivery-financing combinations but are not exhaustive of all possible project structures.
5. **Delivery Options Evaluation:** This section evaluates the delivery options identified and described in the Primer against a range of criteria agreed with the SWC to be the key drivers of the appropriateness and attractiveness of different delivery models to implement regional water supply projects in North Dakota. The purpose of this evaluation is to identify delivery models that have the potential to meet the state's objectives for effective project implementation and are therefore worthy of consideration for current and future potential projects in development. Equally, the analysis identifies delivery models that are unlikely to meet the state's objectives.
6. **Financing Options Evaluation:** This section discusses potential financing options for water projects in North Dakota and the relative advantages and disadvantages of each financing option measured against a set of criteria agreed to with the SWC Study Team.

4.2. Common Funding Approaches for North Dakota Water Supply Projects

The Primer document provided a comprehensive summary of options available across the water industry to fund large scale water supply projects. Many of these options are well known and many are lesser known in the state. For several of the options outlined in the Primer, North Dakota has established a common funding mix to deliver large scale water projects. In general, this approach can be summarized as follows:

- **Most Common State Funding Sources:** It is most common for the state to provide cost-share to projects at varying levels using deposits to the Resources Trust Fund (RTF). The RTF forms the majority of the SWC's budget and can be used to allocate grant-based funding to specific projects. The RTF can also be leveraged as a source of lending to specific projects. Senate Bill 2233 amendments in 2015 established an Infrastructure Revolving Loan Fund within the RTF, which means the fund earns interest on the repayment of loans made for certain regional water projects. Such loans are managed and administrated by the Bank of North Dakota, and interest is charged at 1.5%. The Bank may deduct an annual service fee of 0.5% for administrating the infrastructure loan fund.

- **Most Common Local Funding Sources:** To meet the matching share required after application of state cost-share, local project sponsors most commonly issue revenue bonds or access federal or state subsidized loan programs. The programs include the State Drinking Water Revolving Loan Fund (DWSRF) and Bank of ND Infrastructure Revolving Loan Fund. These bonds and loans are commonly repaid with local revenues in the form of user fees, sales taxes, or special assessments.

4.3. 2021 Legislative Impacts on Water Project Funding

The 2021 Legislative Session made significant strides to address the long-term needs of the water community. The Legislative Assembly passed numerous bills related to water funding and water policy, but the two primary bills with a fiscal impact on the future efficiency of the limited state resources were HB 1020 and HB 1431. These two bills have impacts on both the near- and long-term funding from the RTF for water projects in the state.

- **HB 1020** is the budget bill for the SWC. The budget includes $125 million for water supply projects. Additionally, the SWC has a $50 million line of credit (LoC) at the Bank of North Dakota for use on NAWS. The budget also includes a $6 million discretionary fund for the SWC to provide flexibility in funding projects beyond the funds designated by the Legislative Assembly.

- **HB 1431** is the bonding bill passed to fund various state priorities, with a primary focus on water projects. The largest project to receive funding is the Fargo-Moorhead Area

Diversion at $435.5 million. This fulfills the state's existing funding commitment for the project. With this commitment met, the future requests for funding from the RTF is significantly reduced. The bill also included the funds to retire $74.5 million of debt WAWS has from the RTF.

4.4. Emerging Federal Water Policy

There are emerging trends in federal policy related to water infrastructure that have the potential to play a critical role in future state policy on how regional water systems in the state get funded, financed, and delivered. This infusion of federal funding could be a direct source of funding for the regional water systems or, due to the additional federal funding for other state priorities, it could allow the state flexibility in funding water projects through other sources than just the RTF.

4.4.1 American Rescue Plan Act (ARPA)

The federal American Rescue Plan Act of 2021 (ARPA) was signed into law in March, 2021. In addition to numerous other provisions included within ARPA, ARPA provides $195.3 billion directly to states and another $130.2 billion to local government to allow for local decisions on distribution to meet local needs. The federal government set various parameters on how the funding could be used. One of the primary approved uses of funding included the ability to make investments into water infrastructure. With North Dakota allocated over $1 billion in ARPA funding, there is significant potential for funding to be made available for state water infrastructure needs.

4.4.2 Federal Infrastructure Bill

In August 2021, the U.S. Senate voted approval a $1 trillion infrastructure bill aimed to rebuild the nation's infrastructure. The bipartisan proposal includes $55 billion specifically dedicated to water infrastructure. The proposal was first introduced by President Biden and a successful compromise was reached to clear the U.S. Senate. The U.S. House is expected to act on the proposal in the coming months. Once that infrastructure bill becomes law, this new infusion of federal infrastructure funding is anticipated to further enhance the potential for funding the state's water infrastructure needs.

4.4.3 Water Infrastructure Financing and Innovation (WIFIA) and State Water Infrastructure Financing and Innovation (SWIFIA)

The Primer in the exhibits includes some of the more unique and emerging federal programs applicable to large scale water projects, such as the Water Infrastructure Financing and Innovation Act (WIFIA) program and the newly created State Water Infrastructure Financing and Innovation Act (SWIFIA). However, due to their nascent nature, were not incorporated into the study, but hold potential for future projects. A case study is also provided related to the Fargo-Moorhead Area Diversion, which was approved for WIFIA financing. Federal programs such as WIFIA are showing

significant potential to meet the needs of large water infrastructure projects, however, their ability to meet the unique circumstances of the four large regional water supply projects in ND was beyond the scope of this study.

5. PROJECT FUNDING MODEL AND GOVERNANCE CHANGE ANALYSIS

5.1. Large Water Supply Project Funding / Financing Considerations

Considering the multiple funding and financing options outlined in Section 4 that are available to meet both the state and local cost-share for the four major water supply projects, the Study Team developed an analysis to determine the potential positive and negative impacts associated with changing project governance and funding models. In general, the goals for the analysis were defined to achieve the following objectives:

- **Efficient** use of limited state financial resources
- Maintaining **affordability** for local users
- Driving **consistency** between projects to ensure equitable sharing of state resources
- Understanding **risk tolerance** and sensitivity of alternative financing and delivery structures

The Study Team developed all scenarios and takeaways herein considering one of the primary objective of the study from the RFP: develop project implementation models that ensure the most cost-effective use of limited state resources for all four of the major water supply projects.

5.1.1 Summary of Funding and Financing Model Alternatives

As demonstrated in Section 4, there are multiple funding and financing approaches available to achieve the outlined goals for revised water supply project implementation. The varied approaches generally fit under the following options for changed project implementation:

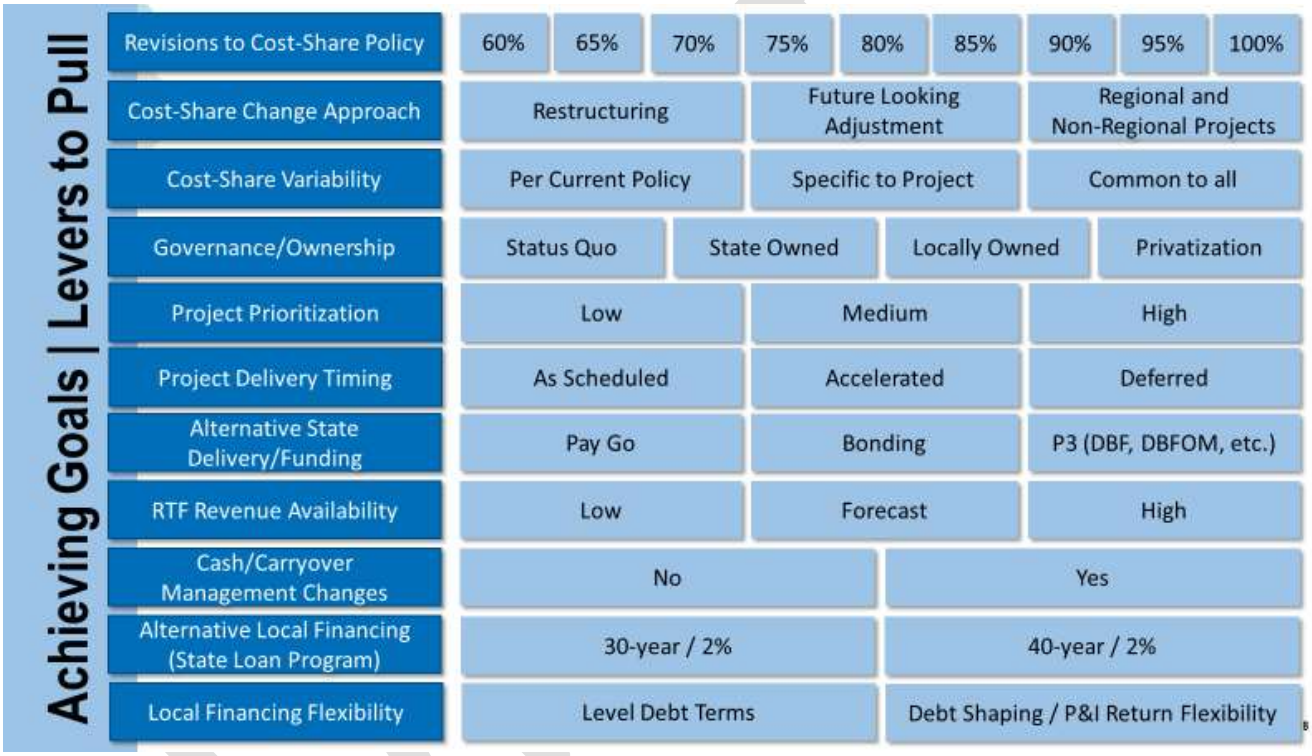
- **Revisions to Cost-Share Policy –** Analyzing the benefits and drawbacks of higher or lower cost-share amounts and cost-share structure.
- **Governance Model Changes –** Determining the financial feasibility to the state or local stakeholders under varied project ownership and governance models.
- **Project Timing Shifts –** Evaluating the potential efficiencies or drawbacks to accelerating, deferring, or implementing projects as scheduled.
- **Alternative Funding / Financing Approaches –** Analyzing changes to the status quo regarding the use of cash, RTF reserves, or debt to pay for the state share of projects.
- **Revenue Availability –** Determining the state's ability to pay for all obligations of the RTF under varied implementation scenarios and projected RTF deposits.

Considering the above, a detailed set of analysis variables was developed to model alternative water supply project implementation scenarios.

5.1.2 Key Funding and Financing Model Variables

In considering the potential revised implementation of the four major water supply projects, the Study Team developed a comprehensive list of analysis variables. A summary of these variables is represented in Figure 5.1 with further description of the change options available for each variable in the following sections.

Figure 5.1 – Water Supply Project Funding and Financing Variables



5.1.2.1 Revisions to Cost-share Policy

Cost-share split between state and local could be revised, resulting in a reduction or increase depending on the project. Generally, the lower the state cost-share that is given to any one project means that there is greater state funding to allocate to other projects and RTF sustainability is increased. However, with other items remaining equal, an increase in local cost-share will reduce local project affordability and potentially reduce long-term project viability.

Careful consideration of past and future policy perspectives is important realizing the revision and application of cost-share policy changes will impact projects differently. From applying it

exclusively to regional projects or to all projects, to focusing on future cost-share as opposed to historical restructuring, all will affect the resources the state can efficiently deploy.

Three potential options for changing the cost-share approach for the four major water supply projects were evaluated:

- **Restructuring** – Applying the cost-share policy change in a fashion that takes into account historic cost-share amounts and restructures the future need to offset and reconcile these into a consistent final cost-share level.

- **Future Looking Adjustment** – Potential for a clean slate approach to the most effective utilization of state resources with a reduced concern of past historical policy decisions.

- **Regional and Non-Regional Projects** – Should large regional projects be given a higher priority with respect to cost-share than smaller regional or non-regional systems. To better isolate other variables, this was held constant for the tested scenarios.

Changes to cost-share amounts imply changes to current cost-share policy. Whether or not the SWC wants to apply a consistent cost-share policy to large regional projects or continue to recognize that differences may be appropriate given the fundamental differences in services provided. The Study Team has identified three potential options to applying cost-share variability for regional water supply projects:

- **Per Current Policy** – Current policy was developed with a lot of thought and individual consideration at the time it was created. Current policy provides a wide array of cost-share models that could continue to work.

- **Specific to Project** – Projects provide varied levels of service related to supply, treatment, and distribution along with other variables like population served or ability to pay. Consideration to each unique project individually to strike a balance.

- **Common to All** – Implementing a universal cost-share model for all projects to create consistency in policy and application of cost-share.

5.1.2.2 Governance and Project Ownership

While cost-share is the most prominent change variable in the analysis, there are other change variables that impact the implied cost-share (based on current policy) or how projects may be delivered. The potential approach to governance and ownership structures include:

- **Status Quo** – No change to current project structure for administration, delivery, and operations for any of the projects.
- **State Ownership** – State Ownership of the various projects in a manner like the SWPP.
- **Local Ownership** – Local Ownership of all of the projects in a manner similar to WAWS or other local water systems found throughout the state.
- **3rd Party Public Entity** – Ownership of the project by a party different than the end user, such as is currently the approach for the RRVWSP where Garrison Diversion owns and operates the project for the local users.
- **Privatization** – Complete privatization of the projects to a non-governmental entity (i.e., a for-profit or not-for-profit corporation) with the idea that greater efficiencies of capital would be realized by the private sector.

5.1.2.3 Project Prioritization

Allows the SWC to determine how the goals of the project align with the goals of the state. Even amongst regional water systems, it is important to identify which are more important for the state to accomplish before others and why. Further development of this selectivity within cost-share policy would allow the Study Team to model variable prioritization models. Current policy was developed with a lot of thought and individual consideration at the time it was created. Current policy provides a wide array of cost-share model considerations that could continue to work. Prioritization based upon portion of the system (i.e. water supply, treatment, transmission, storage, and distribution) and additional variability could be added for items such as growth demands, population served, ability to pay, current access to supply, security of supply, quality of supply, economic benefits, etc. This variable takes on greater importance in a resource constrained scenario where all project cost-share requirements cannot be met with available revenues. To better isolate other variables, this was held constant for the tested scenarios.

5.1.2.4 Project Delivery Timing

There are benefits and costs to shifting how quickly projects are delivered. Current project cost-estimates include inflationary cost-estimates based on when resources are needed. Accelerating the timing may result in lower inflationary pressures and lower interest rate risk (for local sponsors). Delaying projects may allow the state to ensure cash on hand to pay state cost-share, but it risks cost increases. Three primary timing alternatives are being built into the analysis to allow for the consideration of cash flow management and cost savings considerations.

- **Accelerated** – Reduce the construction schedule for RRVWSP and WAWS by rolling the last biennium of costs across the remaining period.

- **As Scheduled** – All costs realized as planned.

- **Delayed** – Increase the period of construction to reduce the demand in any single biennium.

5.1.2.5 Alternative State Funding / Delivery Approach

The state's cost-share is currently limited by its ability to cash-flow the major costs of the regional projects. By providing funding options for the state cost-share, additional benefits may exist by extending the term of repayment, smoothing cash flow demands, lowering delivery risks, increasing the deliverability of more projects, providing generational equity, and increasing state affordability. The specific variables evaluated include:

- **PAYGO -** The RTF forms most of the SWC's budget and can be used to allocate grant-based funding on a Pay As You Go (PAYGO) basis to specific projects or initiatives in the form of state appropriations. This is the current model and is well known and well tested but has not traditionally provided flexibility and is subject to high uncertainty in delivery and funding volatility as energy markets fluctuate.

- **Bonding/Line of Credit -** The use of bonding or an additional LoC to cover biennial deficiencies as needed could be useful to decouple project delivery schedules directly from revenue fluctuations. There may be the ability to leverage other resources of the state for bonding, similar to the approach initiated in the 2021-2023 session for flood protection, to provide more beneficial financing terms for state cost-share of regional water supply projects and realize long-term savings related to inflationary, indexation, and interest rate risks by doing so.

- **P3 (DBF, DBFOM, etc.) – Design, Build, Finance, Operate, and Maintain (DBFOM),** the responsibility for, design, build, finance, and operation and maintenance of a project is transferred to a private partner, which in turn uses project revenues or an availability payment to repay its debt, cover the O&M costs over the contract term, and earn a fair return on its equity investment. These models can transfer the risk of project delivery and operations to the private sector while creating financial efficiencies for the public sector. To better isolate other variables, this was held constant for the tested scenarios.

5.1.2.6 Resources Trust Fund Revenue Availability

Restricting funding decisions to forecasted revenue means that those forecasts have a large impact on what projects can be funded. Under this constraint, adjusting the forecasted revenue can either further reduce funding or provide additional revenues to fund projects. This variable in the analysis will allow the Study Team to test the sensitivity of any given scenario to revenue fluctuations. To better isolate other variables, RTF revenues were held constant for the tested scenarios.

5.1.2.7 Resources Trust Fund Cash Management

The limitations from a PAYGO model are exacerbated by requiring cash to be held in reserve for projects that will not incur costs within a given period. This cash could be leveraged to fund additional projects and more efficiently deploy state resources.

- **No -** Continue to obligate state resources on a project-by-project basis. This ensures that the money will be readily available when the project needs it and does not need to rely on cost-loaded schedules for funding needs from projects.

- **Yes -** Provide funding to specific projects on an as-needed basis while modernizing the cash management strategy of the revenue from the RTF to more comprehensively leverage the state resources to benefit more projects.

5.1.2.8 Local Financing Alternatives

Cities, water districts, and water resource districts are allowed to issue bonds, subject to a maximum 40-year term. These bonds are generally payable solely from user revenues generated by a particular enterprise, such as a water or sewer system or utility. The analysis incorporates this standard approach and an alternative financing approach. By providing alternative local financing options that extend the term at low rates, the end-user affordability can remain steady with lower direct state aid on projects.

- **30-year / 2% -** Approved/common terms of the Drinking Water State Revolving Fund (DWSRF) and Bank of ND Infrastructure Revolving Loan Fund Program. DWSRF loans common with many federal requirements that can increase project capital costs and 30-year terms may not be long enough to spread the benefit of long-life water supply assets.

- **40-year / 2% -** Maximum potential term for the newly approved Water Infrastructure Revolving Loan Fund administered by the SWC and the Bank of ND. Extended length mirrors the efforts from innovative federal programs that better match the expected useful life of multi-generational assets.

In addition to offering programs with more attractive terms or rates, affording flexibility for financing programs to grow into the project as designed can improve affordability for local project sponsors with reduced state cost-share.

- **Level Debt Terms –** More commonly seen in state programs today with consistent and equal payments over the term of the loan.

- **Debt Shaping / P&I Return Flexibility –** Less commonly seen in state programs today, but mirrors more innovative financing programs on the federal level or market financing packages. Annual repayment obligations grow to match the growth in the system and better align per user costs with total project costs over the life of the loan.

5.1.3 Funding Model Change Analysis

5.1.3.1 Funding Model Scenario Development Summary

The primary goal of the scenario analysis was to develop revised project implementation options that work to balance efficiency with state resources, local level affordability, and consistency across projects. Based on these goals, multiple scenarios were developed by incorporating the variables for change defined above and comparing the results to a baseline scenario. The scenarios were analyzed through a weighting analysis (see Table 5.10) to determine overall effectiveness in achieving the following as compared to the baseline scenario:

- **Net State Cost Savings** – Relative to baseline, does the scenario increase or decrease state obligations to pay for the state share of the regional water supply projects?
- **State Deficit/Bonding Requirements** – Does the scenario require significant alternative resources or drive RTF deficit spending beyond baseline?
- **Net Local Cost** - Relative to baseline, does the scenario increase or decrease total local obligations to pay for the local share of the large regional water supply projects?
- **Local Annual Cost of Capital at Completion** – Is the scenario effective in achieving near-term local affordability by driving down the cost of capital on a per 1,000 gallons (kgal) basis at the time of project completion?
- **Local Annual Cost of Capital at Peak** - Is the scenario effective in achieving long-term local affordability by driving down the cost of capital on a per kgal basis at peak repayment?
- **Accelerated Project Delivery** – Is the scenario effective in delivering water supply across the state sooner than currently scheduled in the State Water Plan?

5.1.3.2 Baseline Scenario Analysis – Forecasted Impacts to the Resources Trust Fund

To analyze the impacts of change from the scenario analysis, the Study Team developed a baseline funding model for the RTF. The baseline funding model assumed the RTF would incur cost-share expenses as outlined in the 2021 Water Development Plan for all current project funding categories with all project costs indexed to inflation. The model was analyzed through the 2031-2033 biennium, as the 2021 Water Development Plan currently projects this to be the completion point for all four of the major water supply projects. One major exception from the currently published 2021 Water Development Plan was the removal of RTF funding requirements for Fargo-Moorhead Area Diversion in recognition of the bonding legislation passed in the 2021 legislative session. For the modeling of future RTF revenues, deposits were applied based on 2021-2023 legislative forecast and inflated by 5% per biennium to the end of the modeled period in 2033, as show in Table 5.1 below.[2]

Table 5.1 - Forecasted Revenues per Biennium

Biennium	Gross Production Tax	SWPP Capital Repayment	Federal MR&I	Total
2021-2023	$325,310,000	$11,146,894	$24,000,000	$360,456,894
2023-2025	$341,575,500	$11,750,268	$24,000,000	$377,325,768
2025-2027	$358,654,275	$12,386,302	$24,000,000	$395,040,577
2027-2029	$376,586,989	$13,056,764	$10,000,000	$399,643,753
2029-2031	$395,416,338	$13,763,517	$0	$409,179,856
2031-2033	$415,187,155	$14,508,527	$0	$429,695,682
Total	$2,212,730,257	$76,612,272	$82,000,000	$2,371,342,529

In addition, Capital Repayment from SWPP project was projected based on existing repayment approach and inflated based on historical consumer price index (CPI) data at 2.16%[3] per year and a moderate system growth factor of 0.5% per year, which is consistent with what was utilized in

[2] Oil extraction tax growth has averaged 10% over the last 13 years with a high of 63% and low of (106%). A conservative estimate of 5% per biennium was considered appropriate for the nature of this study.

[3] CPI Data calculated based on the 1991 to 2020 average annual rate of increase from BLS data for all items, U.S. city average.

the Transfer Study. The figure below represents the summary results from the baseline modeling of the RTF:

Figure 5.2 – Baseline RTF Scenario Analysis Results (2021-2033)

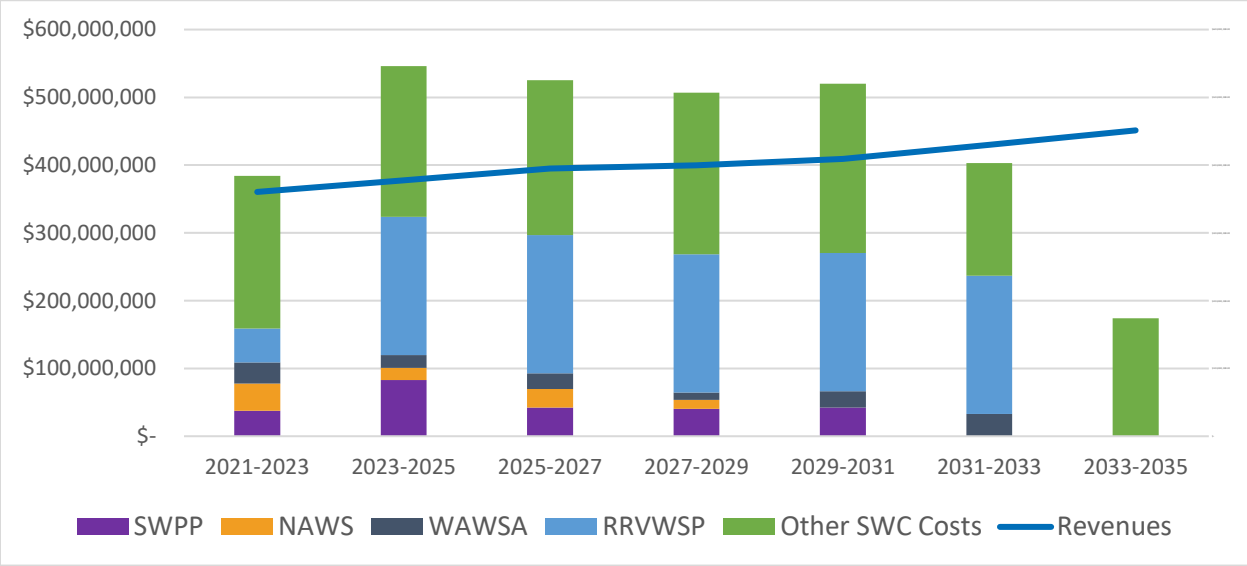


Table 5.2 – Baseline RTF Scenario Analysis Results (2021-2033)

Key State Cost Consideration	Baseline Scenario Results (Nominal$)
Resources Trust Fund Revenue	$2.2B
Federal MR&I Revenues	$82M
Total Capital Repayment Returned to the RTF from SWPP	$77M
Total State Cost-Share for Major Water Supply Projects	$1.55B
Peak Biennium Deficit	$169M
Total Deficit across Modeled Period	$540M

5.1.3.2.1 Baseline Scenario Analysis - Forecasted Local Project Costs

To establish the baseline conditions for anticipated local costs, the Study Team modeled the local cost-share based on current policy and projected the anticipated total local cost based on

assumed financing conditions for WAWS, NAWS, and RRVWSP and existing Capital Repayment requirements for the SWPP. The financing terms utilized in the analysis assumed WAWS, NAWS, and RRVWSP would access existing loan programs through either the DWSRF or through the Bank of North Dakota Infrastructure Revolving Loan Fund (IRLF). Both programs currently offer financing terms up to 30 years with a net effective interest rate of 2% per year. Except for WAWS, none of the remaining projects currently have any debt obligations. Therefore, the WAWS analysis included the addition of forecasted costs to completion on top of existing domestic debt obligations. As mentioned, Capital Repayment from SWPP project was projected based on the existing approach of indexing the rate each year based on CPI (2.16%) and applying a moderate system growth factor of 0.5% per year.

Table 5.3 indicates projected total local cost of capital (including principal and interest) for a modeled 45-year period based on the currently understood cost to completion for these projects. The 45-year period of analysis was chosen to account for the projected expiration of all modeled 30-year debt services issuances after project completions in the next 12 years. To account for time value of money considerations, the costs are presented in both total nominal dollars and in 2021 dollars. Costs were discounted back to 2021$ based on the 30-year average (approximately 2.5%) of the United States Army Corps of Engineers published discount rate.[4] Values shown for WAWS include both current industrial and domestic debt, since both are repaid through local water sales revenue from either domestic or industrial users. The projected WAWS debt amounts were adjusted to account for the reimbursement of $74.5M in industrial debt service that was approved in the 2021 legislative session.

Table 5.3 – Baseline Scenario - Total Projected Remaining Local Cost of Capital

System	Total Cost (Nominal$)	Total Cost (2021$)
SWPP	$437M	$233M
NAWS	$62M	$41M
WAWS	$246M	$184M
RRVWSP	$478M	$290M

[4] The 2.5% rate is documented in the U.S. Army Corps of Engineers Economic Guidance Memorandum, 21-01 and can be accessed: https://planning.erdc.dren.mil/toolbox/library/EGMs/EGM21-01.pdf.

To better benchmark between the projects, Table 5.4 below indicates projected local annual cost of capital per 1,000 gallons (kgal) of system consumption for each project. The calculation was performed to determine impacts from current policy to the end of the RTF modeled period in 2033. The calculation of impacts was performed by dividing the total projected annual cost (in 2033) by the total projected system consumption (in 2033) to establish an annual unit cost of capital per kgal. Projected system consumption in 2033 was arrived at by using existing sales information, population trends, and a 0.5% growth rate. To account for time value of money considerations, the impacts were discounted back to 2021 dollars in order to compare the efficiency of each of the scenarios that follow to the baseline scenario. It should be noted that the projected cost of capital indicated for WAWS includes both domestic and industrial debt divided by the projected local water sales from both domestic and industrial user classes. For SWPP, the indicated capital repayment amount of $2.00 per kgal is an average of all capital repayment dollars on an annual basis divided by total combined system usage, regardless of user class or actual repayment rates. Therefore, this cost of capital should not be directly compared to the rate charged to SWPP users for Capital Repayment.

Table 5.4 – Baseline Scenario - Projected Local Cost of Capital per kgal of Projected System Usage (2021$)

System	Future (2033) Annual Cost of Capital per Kgal[1]
SWPP	$2.00
NAWS	$0.89
WAWS	$2.09
RRVWSP	$0.87

[1]*In looking at the projected cost of capital per kgal for the four systems, these values should not be taken as a direct benchmark between systems. There are key differences in the extent of infrastructure being funded in each system, including historical amounts that have no impact on current or future calculations (i.e. NAWS), as they are already paid for. In the case of SWPP project and WAWS, capital cost represents the investments needed to fund potable water supply and treatment for wholesale supply to cities and for rural systems all the way to the point of individual rural service connections. In the case or RRVWSP, the amount represented is only for emergency or supplemental raw water supply with all systems served*

by the project funding the remaining supply, treatment, transmission, storage, and distribution capital outside of this amount.

5.1.3.3 Alternative Funding Model Scenarios

5.1.3.3.1 Scenario A – Local Ownership / 65% Cost-Share

Scenario A was developed to allow expanded funding capacity within the RTF and modernization of the cost-share policy. To drive towards equity between projects, this scenario includes restructuring the state's relationship with each project by normalizing historic and future cost-share and promoting local project governance. With the proposed state cost-share reduction, it is also proposed to limit local affordability impacts by providing access to 40-year financing with flexible debt shaping terms. The result would be a lower overall state cost-share and generally allow for more funding for all water projects. The following outlines key variables that were included to the analysis of Scenario A:

- **Revisions to Cost-Share Policy:** 65% cost-share applied to all regional projects.
- **Cost-Share Change Approach:** Restructured historic cost-share to achieve the desired cost-share level for all project costs past and future. Based on cost-share levels to date, this resulted in adjustment to future cost-share applications across the next 3 biennia with SWPP project receiving a restructuring deduction totaling $83M, NAWS receiving a restructuring deduction totaling $24M[5], and RRVWSP receiving a restructuring deduction of $17.3. Restructuring WAWSA's historic cost-share also includes the migration of all debt to the system's ultimate responsibility under the proposed financing program, the cost-share adjustment is credited to the oldest loans first to pay those off prior to the system assuming ultimate responsibility through the new financing program. This results in a $28.7M reduction in the $101M current outstanding debt.
- **Cost-Share Variability:** 65% state cost-share was applied common to all projects.
- **Governance/Ownership:** All projects would be converted away from State Ownership.
- **Project Deliver/Timing:** SWPP, NAWS, and WAWS delivered as scheduled within the 2021 Water Development Plan. Given the scale of the project and risks associated with a protracted construction schedule, the RRVWSP delivery was accelerated to a 3 biennia schedule to minimize delivery and indexation risks of the long-lead construction schedule to both the state and local stakeholders.

[5]Adjustment assumes State and Federal cost-share combine to 65 percent total non-local participation.

- **State Share Funding Approach**: RTF cash as available with bonding or LoC utilized in future biennia with projected shortfalls.
- **RTF Revenue Availability:** Deposits were applied based on 2021-2023 legislative forecast and inflated to the end of the modeled period.
- **Cash/Carryover Management Changes:** Assumed the state would modify NDCC and existing SWC policy as necessary to allow for flexible use of cash/carryover to minimize future bonding or LoC needs.
- **Local Share Funding Structure:** All local project costs covered by financing from revised state loan program allowing for 40-year repayment term, 2% interest rate, and debt shaping with flexible principal and interest return requirements. In general, the debt was sculpted to grow the repayment requirement into the future, allowing for generational equity amongst current and future project users and balancing affordability on a time value of money basis. Due to the impacts of restructuring WAWSA's debt and cost-share, a level term was assumed for their debt repayments.

5.1.3.3.2 Scenario B – Local Ownership / 75% Cost-Share

Scenario B was developed to maintain cost-share levels to date and focus on forward looking adjustments, promoting local project governance, and allowing local access to 40-year level-financing. The results would be a lower overall state cost-share (primarily from lowering cost-share for SWPP) improved local level affordability, and this scenario would allow for more funding for projects across the state. The following outlines key variables that were included to the analysis of Scenario B:

- **Revisions to Cost-Share Policy:** 75% cost-share applied to all regional projects.
- **Cost-Share Change Approach:** Historic cost-share levels maintained with all cost-share adjustments applied on a future looking basis.
- **Cost-Share Variability:** 75% state cost-share was applied common to all projects.
- **Governance/Ownership:** All projects would be converted away from State Ownership.
- **Project Deliver/Timing:** Projects delivered as scheduled within the State Water Plan.
- **State Share Funding Approach:** Bonding or LoC utilized in future biennia with projected shortfalls.
- **RTF Revenue Availability:** Deposits were applied based on 2021-2023 legislative forecast and inflated to the end of the modeled period.

- **Cash/Carryover Management Changes:** No changes applied to current cash management policies of the RTF.
- **Local Share Funding Structure:** All local project costs covered by financing from revised state loan program allowing for 40-year repayment term, 2% interest rate, and level debt repayment terms.

5.1.3.3.3 Scenario C – Local Ownership / 60% Cost-Share

Scenario C reduces cost-share for all regional *and non-regional projects* to the 60% level, standardizing cost-share across the board. Focus of cost-share policy change is on future demands of the RTF. With an expanded state ability to pay from a reduced cost-share, this scenario accelerated regional project timings and utilized bonding/LoC to maintain RTF balances. To minimize local impacts from reduced cost-share, local financing was modeled with 40-year repayment with shaped terms. The following outlines key variables that were included to the analysis of Scenario C:

- **Revisions to Cost-Share Policy**: 60% cost-share applied to all regional and non-regional projects.
- **Cost-Share Change Approach**: Historic cost-share levels maintained with all cost-share adjustments applied on a future looking basis.
- **Cost-Share Variability:** 60% state cost-share was applied common to all projects.
- **Governance/Ownership:** All projects would be converted away from State Ownership.
- **Project Deliver/Timing:** Regional projects delivered on an accelerated schedule.
- **State Share Funding Approach:** Bonding or LoC utilized in future biennia with projected shortfalls.
- **RTF Revenue Availability:** Deposits were applied based on 2021-2023 legislative forecast and inflated to the end of the modeled period.
- **Cash/Carryover Management Changes:** No changes applied to current cash management policies of the RTF.
- **Local Share Funding Structure:** All local project costs covered by financing from revised state loan program allowing for 40-year repayment term, 2% interest rate, and debt shaping with flexible principal and interest return requirements. In general, the debt was sculpted to grow the repayment requirement into the future, allowing for generational equity amongst current and future project users and balancing affordability on a time value of money basis.

5.1.3.3.4 Scenario D – State Ownership / 100% Cost-Share

Scenario D was developed to illustrate an equitable approach for the four major regional water supply projects by converting all projects to a State Ownership model. Under this approach, the initial project capital costs would be 100% covered by the state with each system required to contribute back capital repayment to the RTF. The following outlines key variables that were included to the analysis of Scenario D:

- **Revisions to Cost-Share Policy:** 100% cost-share applied to all regional projects.
- **Cost-Share Change Approach:** Restructured historic cost-share to pay off any existing system debt. WAWS is the only system currently with outstanding debt including both the domestic debt that is obligated locally and industrial debt that is held by the state. Under this approach, it was assumed that all existing debt would become state debt that would be restructured into a future bond issuance.
- **Cost-Share Variability:** 100% state cost-share was applied common to all projects.
- **Governance/Ownership:** All projects would be converted to State Ownership.
- **Project Deliver/Timing:** Projects delivered as scheduled within the 2021 Water Development Plan.
- **State Share Funding Approach:** RTF cash as available with bonding or LoC utilized in future biennia with projected shortfalls.
- **RTF Revenue Availability:** Deposits were applied based on 2021-2023 legislative forecast and inflated to the end of the modeled period. The amounts are consistent with baseline RTF revenues.
- **Cash/Carryover Management Changes:** Assumed the state would modify NDCC and existing SWC policy as necessary to allow for flexible use of cash/carryover to minimize future bonding or LoC needs.
- **Local Share Funding Structure:** Capital repayment was applied to all systems forecasted usage starting at $2.00/kgal and growing based on forecasted CPI inflation to a cap of $3.00/kgal. Forecasted usage per biennium is shown in Table 5.5 below.

Table 5.5 - Forecasted Usage by System per Biennium (usage in kgal)

Biennium	SWPP	NAWS	WAWS	RRVWSP
2021-2023	4,411,000	3,946,941	7,065,287	27,647,177
2023-2025	4,455,220	3,964,907	7,094,576	28,018,816
2025-2027	4,499,884	3,982,954	7,303,713	28,188,579
2027-2029	4,544,995	4,001,084	7,521,007	28,353,012
2029-2031	4,590,559	4,019,296	7,718,019	28,521,043
2031-2033	4,636,579	4,028,433	7,775,827	28,604,451

(Source: Southwest Water Authority Information Packet 2021 Projected Water Sales and other project representatives.)

5.1.3.4 Scenario Analysis – Summary Results

Based on the results of the respective scenarios outlined above, the Study Team developed an analysis to compare the financial implications at both a state and local level for each scenario. Table 5.6 shows the result across the modeled period of the RTF to full project completion. Key considerations include (1) the total cost to the RTF for the regional water supply projects, (2) any revenues returned to the RTF through scenarios with capital repayment included, and (3) the net state cost which is the difference between items 1 and 2. In addition, total deficit or revenue shortfalls that require bond proceeds are summarized for each scenario.

Table 5.6 – Summary of State Share Impacts to Project Completion in 2033 (nominal $)

Key State Cost Consideration	Baseline Scenario Results (Nominal$)	Scenario A Results (Nominal$)	Scenario B Results (Nominal$)	Scenario C Results (Nominal$)	Scenario D Results (Nominal$)
Resources Trust Fund Revenue	$2.2B	$2.2B	$2.2B	$2.2B	$2.2B
Federal MR&I Revenues	$82M	$82M	$82M	$82M	$82M
Total Capital Repayment Returned to the RTF	$77M	NA	NA	NA	$428M
Total State Cost-Share for Major Water Supply Projects	$1.55B	$1.18B	$1.51B	$1.21B	$2.0B
Total Other State Costs	$1.33B	$1.33B	$1.33B	$1.28B	$1.33B
State Bonding Needs	NA	$340M	$769M	$659M	$587M
Peak/Total Biennium Deficit	$169M / $540M	NA	NA	NA	NA

Figure 5.3 - RTF Scenario A Analysis Results (2021-2033)

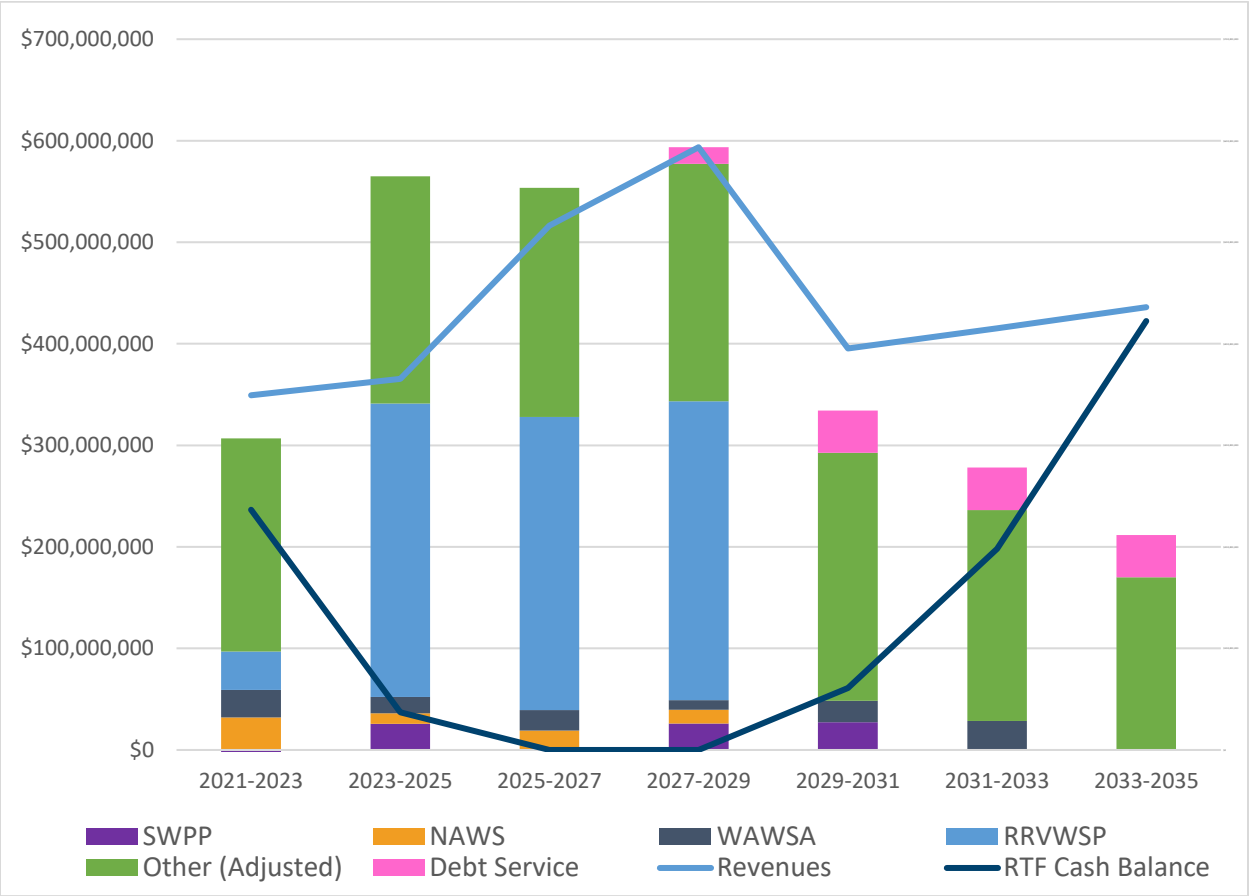


Figure 5.4 - RTF Scenario B Analysis Results (2021-2033)

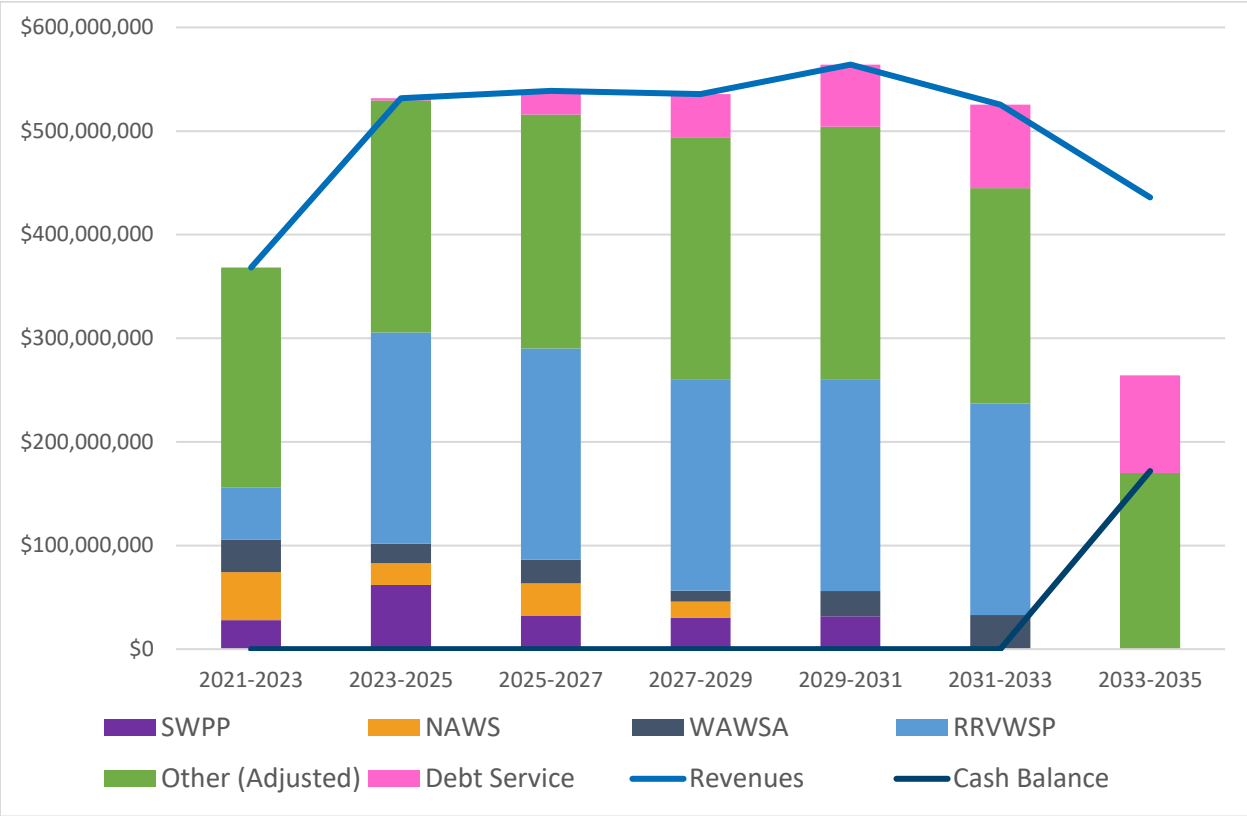


Figure 5.5 - RTF Scenario C Analysis Results (2021-2033)

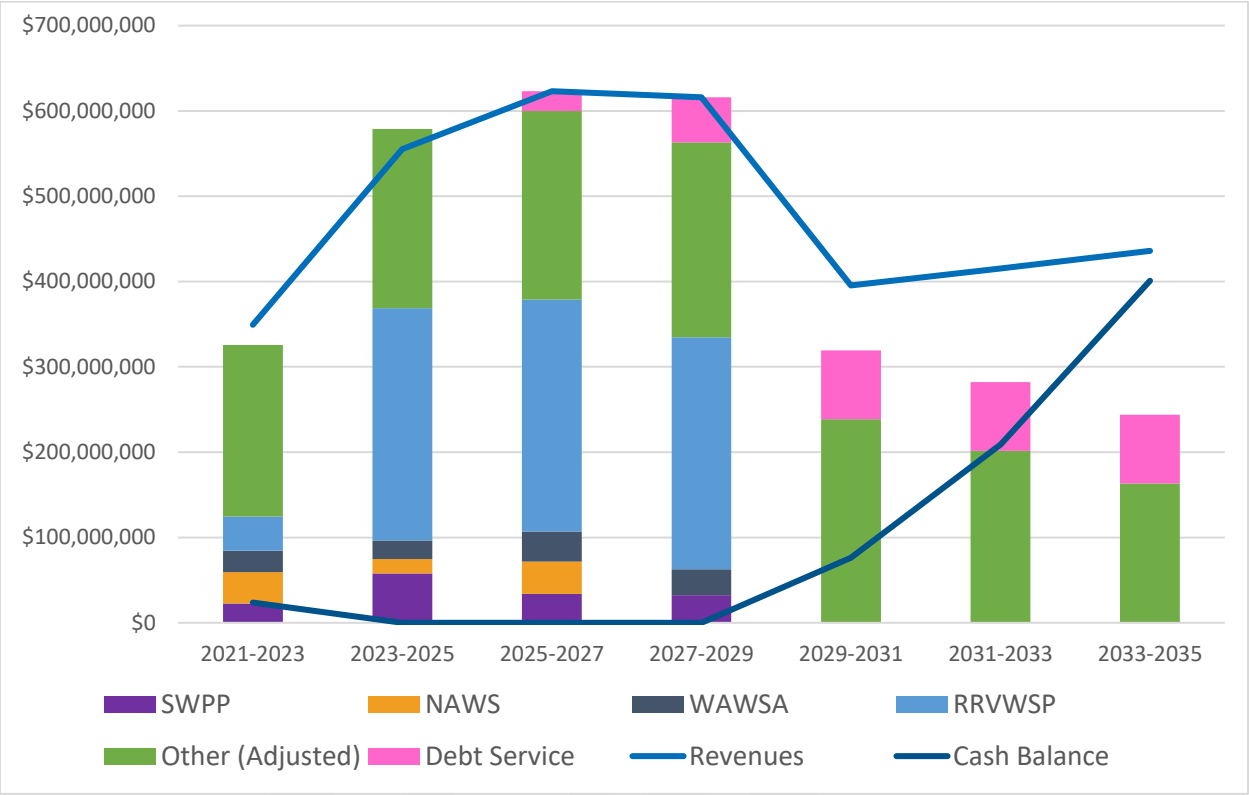


Figure 5.6 - RTF Scenario D Analysis Results (2021-2033)

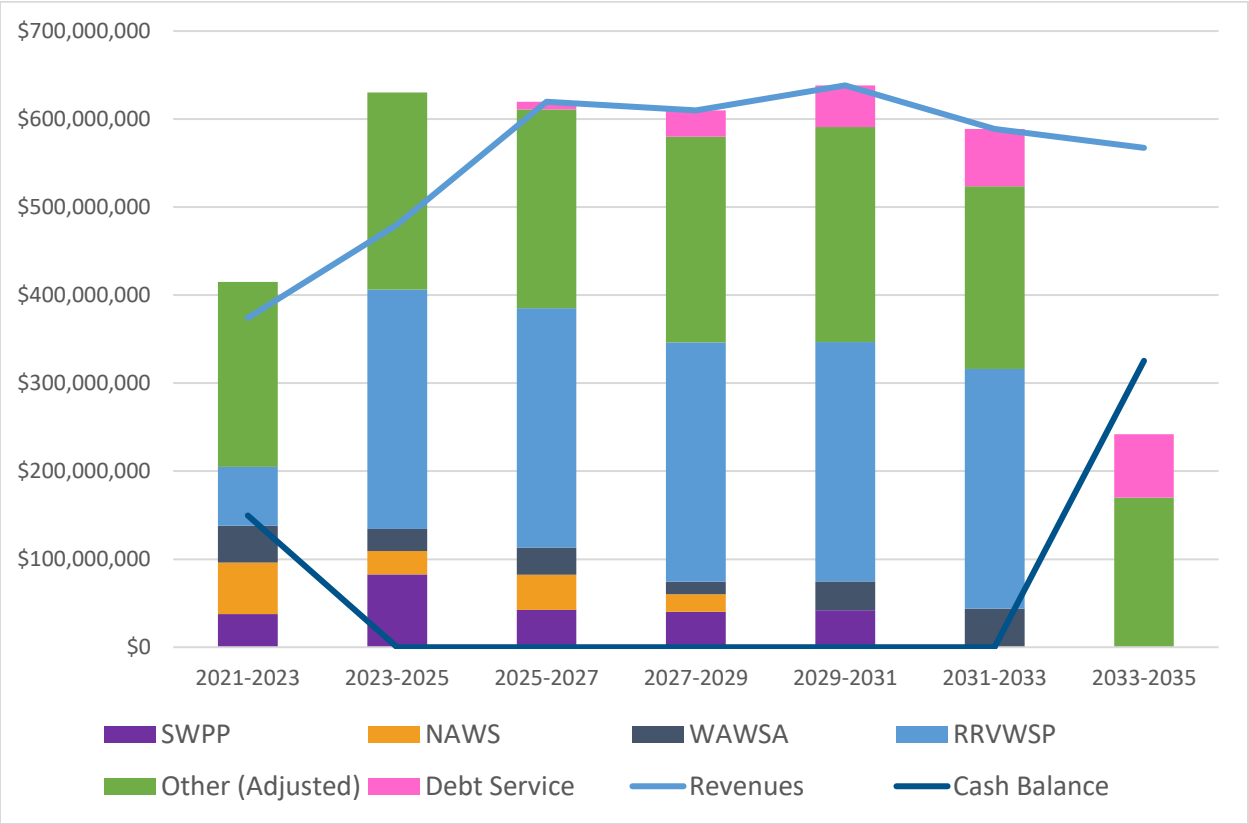


Figure 5.7 through Figure 5.10 below represent the projected local annual cost of capital in the form of either debt service costs or capital repayment for all scenarios considered, including the baseline scenario, across a 45-year modeled period.

Figure 5.7 – Projected Local Annual Cost of Capital for SWPP (2021-2066)

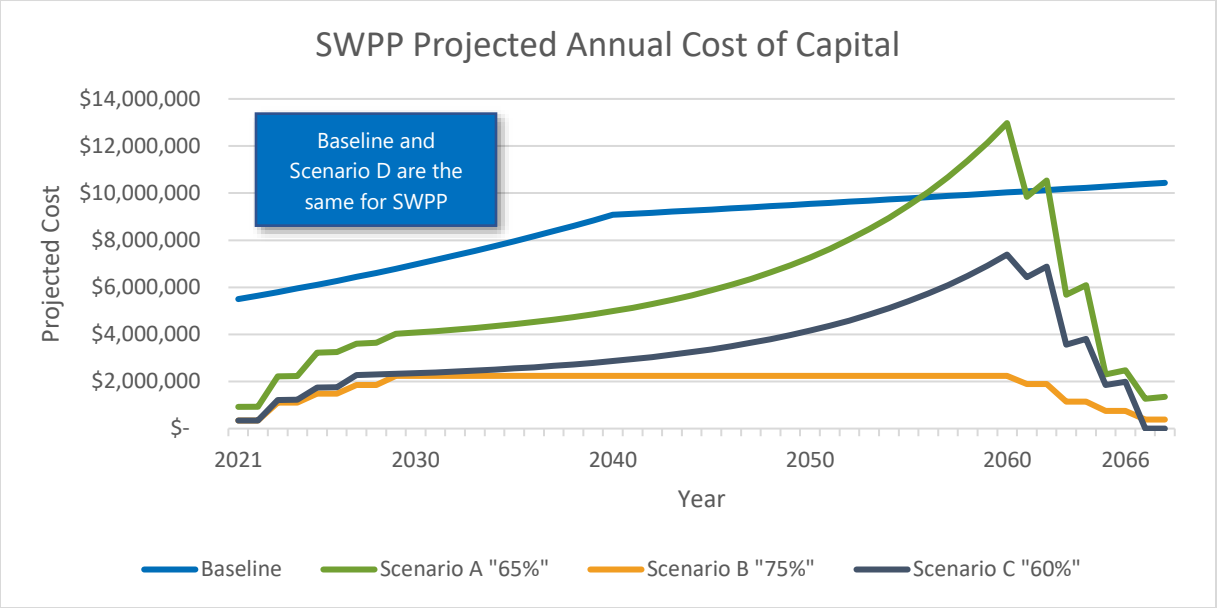


Figure 5.8 – Projected Annual Cost of Capital for NAWS (2021-2066)

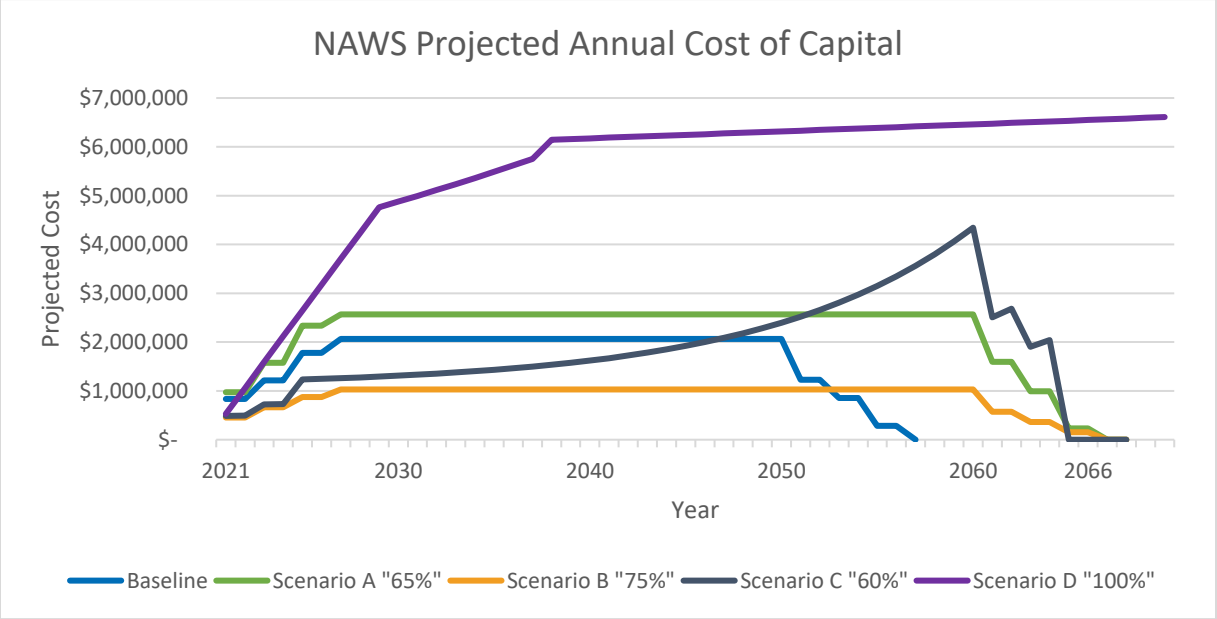


Figure 5.9 – Projected Annual Cost of Capital for WAWS (2021-2066)

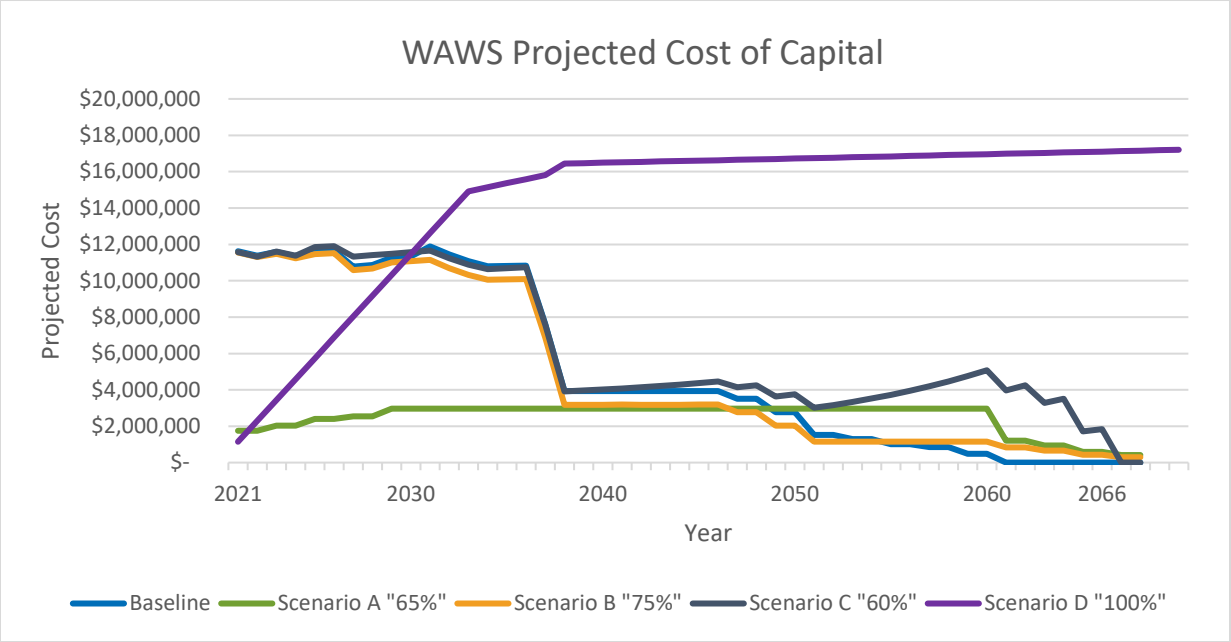


Figure 5.10 – Projected Annual Cost of Capital for RRVWSP (2021-2066)

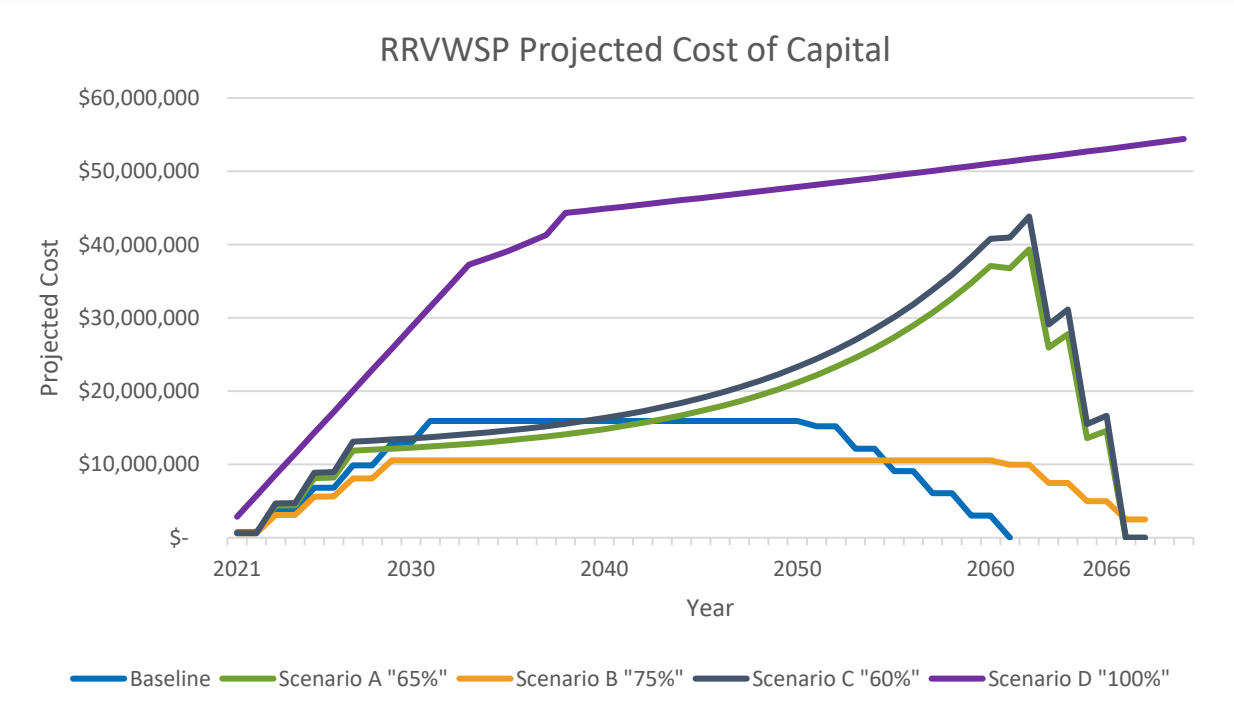


Table 5.7 below represents the projected total local cost of capital across the modeled repayment period for all scenarios considered as compared to baseline. The values indicated are a summation of all annual costs for each scenario. Both total nominal and total current dollars are summarized to correct for time value of money considerations associated with the varied repayment periods and timing of repayment of the respective scenarios.

Table 5.7 – Summary of Local Costs Across Repayment Period

	Baseline		Scenario A 65% - Shaped		Scenario B 75% - Level		Scenario C 60% - Shaped		Scenario D 100% - Shaped	
	Total Cost	Net Present Value @ 2.5%	Total Cost Difference from Baseline	Net Present Value @ 2.5%	Total Cost Difference from Baseline	Net Present Value @ 2.5%	Total Cost Difference from Baseline	Net Present Value @ 2.5%	Total Cost Difference from Baseline	Net Present Value @ 2.5%
SWPP	$437M	$233M	$164M	$92M	$348M	$182M	$279M	$152M	-	-
NAWS	$62M	$41M	($41M)	($20M)	$21M	$16M	($25M)	($5M)	($215M)	($103M)
WAWS	$246M	$184M	$127M	$112M	$11M	$8M	($54M)	($22M)	($475M)	($188M)
RRVWSP	$478M	$290M	($355M)	($132M)	$56M	$54M	($443M)	($176M)	($1.57B)	($738M)

Figure 5.11 - SWPP 2021 Net Present Value Scenario Comparison

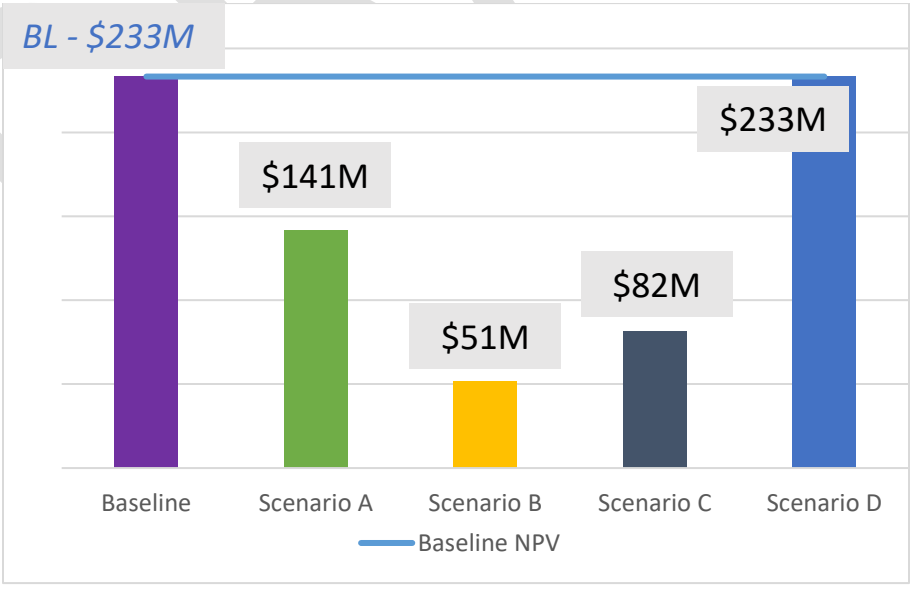


Figure 5.12 - NAWS 2021 Net Present Value Scenario Comparison

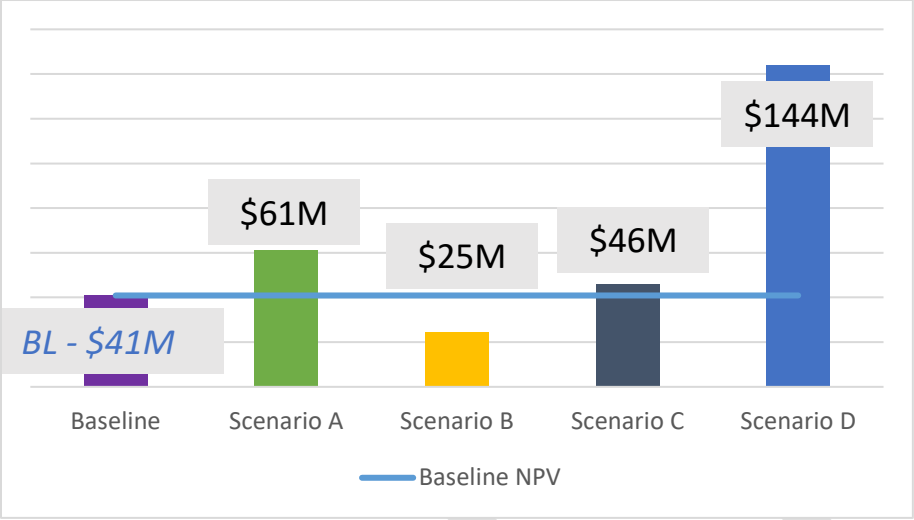


Figure 5.13 - WAWS 2021 Net Present Value Scenario Comparison

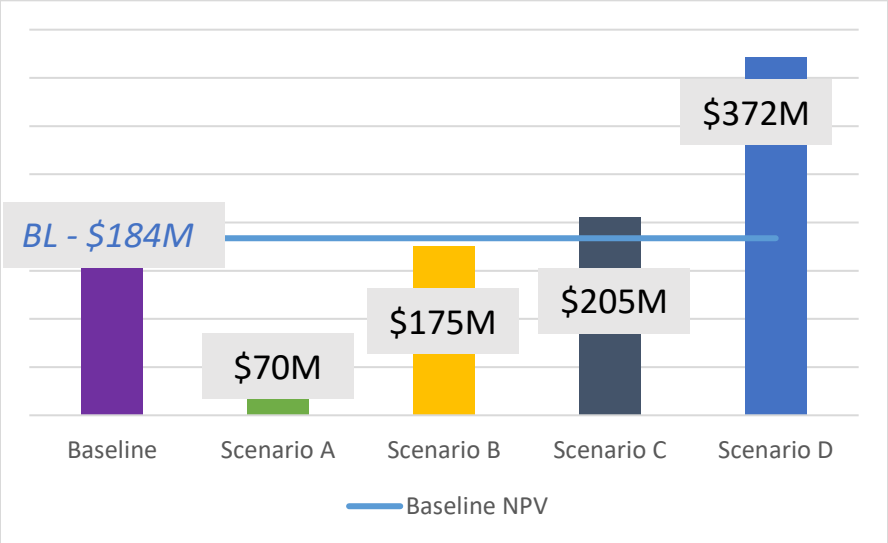
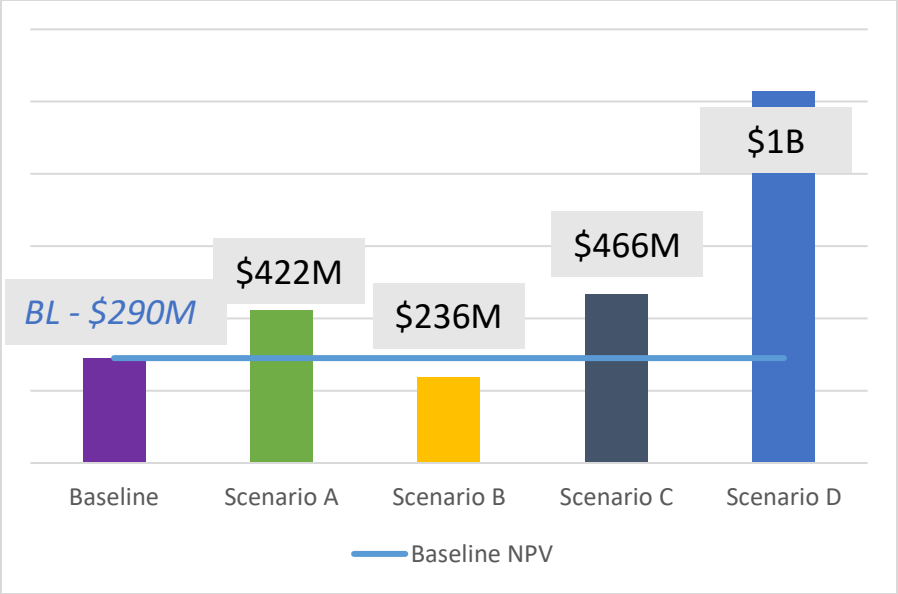


Figure 5.14 - RRVWSP 2021 Net Present Value Scenario Comparison



To better represent the efficiency and effectiveness of the varied scenario structures in achieving affordability, Table 5.8 was developed. This table represents the projected annual cost of capital as compared to baseline on a per kgal basis at the time all the regional water supply projects are modeled to be complete (year 2033). This metric was constructed to determine the effectiveness of each scenario structure in right-sizing repayment requirements with each project's growth over time. The calculation incorporates time value of money and system growth considerations. The cost per kgal values are not a direct rate calculation, but instead are meant to be a benchmark representation of total system cost per unit of water usage. The calculation was performed based on the total projected annual cost of capital in the year 2033 divided by projected total system consumption in the year 2033.

To project total usage for each system into the future, the following methods were utilized:

- For NAWS and RRVWSP, an analysis was performed to determine the 30-year average annual population growth rate for the total service area (on an aggregated county service area basis) for each system. Applying population growth rates to existing water usage, this calculation resulted in a projected 0.20% per year increase in water usage for NAWS and 0.64% increase in water usage per year for the RRVWSP project service area.

- For SWPP, the 30-year growth rate calculations were maintained consistent with past projections from the Transfer Study at 0.5% per year.

- For WAWS a 30-year total service area growth rate calculation was also performed (resulting in a 1.89% per year), however, recent volatility of population growth from energy development in the last 15 years heavily influenced this calculation. To mitigate a potential over projection, a more conservative growth rate of 0.5% was utilized.

These respective system growth rates were then utilized to calculate the future cost of capital in the year 2033 for each system compared to Baseline as shown in the table below.

Table 5.8 – Summary of Projected Annual Cost of Capital at Project Completion (2021$)

Projected Annual Cost of Capital per Kgal at All Projects Complete – 2033 (2021$)					
	Baseline	Scenario A	Scenario B	Scenario C	Scenario D
SWPP	$2.00	$1.40	$0.76	$0.85	$2.00
NAWS	$0.89	$1.11	$0.44	$0.56	$2.00
WAWS	$2.09	$0.56	$1.95	$2.22	$2.00
RRVWSP	$0.87	$0.72	$0.58	$0.80	$2.00

Red = >+10% | Yellow = within 10% | Green = >-10%

Building off the results of Table 5.8 above, Table 5.9 below was developed to analyze affordability and effectiveness of each scenario structure at the time of peak repayment requirements. This table was developed to measure the potential impacts on affordability of the various scenario repayment structures as they grow to peak repayment requirements. Similar to the cost of capital at completion calculation, the peak calculation considers the projected future system usage at the time of peak.

Table 5.9 – Summary of Projected Peak Annual Cost of Capital (2021$)

Projected Annual Cost of Capital per Kgal at Peak Annual Cost (2021$)					
	Baseline	Scenario A	Scenario B	Scenario C	Scenario D
SWPP	$2.00	$1.85	$0.80	$1.06	$0.87
NAWS	$0.89	$1.11	$0.44	$0.77	$0.87
WAWS	$2.38	$0.63	$3.18	$2.86	$0.87
RRVWSP	$0.87	$0.83	$0.61	$0.92	$0.87

Red = >+10% | Yellow = within 10% | Green = >-10%

5.1.3.5 Financial Scenario Analysis – Key Takeaways

As stated, the primary goal of scenario analysis was to develop revised project implementation options that work to balance efficiency with state resources, local level affordability, and consistency amongst projects. Based on the scenario summary results above, the Study Team developed a scenario evaluation matrix to weigh the differences and impacts of change between the scenarios as compared to baseline. Key evaluation criteria indicated in Table 5.9 are summarized further as follows:

- **Net State Cost (Savings over Baseline)** – Relative to baseline, does the scenario increase or decrease state obligations to pay for the state share of the regional water supply projects?
- **Net State Deficit/Bonding Requirements** – Does the scenario require significant alternative resources or drive RTF deficit spending beyond baseline?
- **Net Local Cost (Relative to Baseline)** - Relative to baseline, does the scenario increase or decrease total local obligations to pay for the local share of the large regional water supply projects?
- **Local Annual Cost of Capital at Completion** – Is the scenario effective in achieving near-term local affordability by driving down the cost of capital on a per kgal basis at the time of project completion?
- **Local Annual Cost of Capital at Peak** - Is the scenario effective in achieving long-term local affordability by driving down the cost of capital on a per kgal basis at peak repayment?
- **Accelerated Project Delivery** – Is the scenario effective in delivering water supply across the state sooner than currently scheduled in the 2021 Water Development Plan?

Table 5.10 – Funding Model Scenario Comparison Analysis

Evaluation criteria	Net State Cost (Savings over Baseline)	Net State Deficit/ Bonding Requirements	Net Local Cost (Relative to Baseline)	Local Annual Cost of Capital at Completion (Relative to Baseline)	Local Annual Cost of Capital at Peak (Relative to Baseline)	Accelerated Project Delivery	Financial Scenario Summary Score
Scenario A (65% - Shaped)	🟢	🟢	🟡	🟢	🟡	🟢	+4
Scenario B (75% - Level)	🔴	🔴	🟢	🟢	🟢	🔴	0
Scenario C (60% - Shaped)	🟢	🟡	🟡	🟡	🟡	🟢	+2

Scenario D (100%)	🔴	🟡	🔴	🟡	🟡	🔴	**-3**

Red = -1 | Yellow = 0 | Green = +1

As shown in Table 5.10, Scenario A has the highest overall score. This scenario scored highest in the net cost to the state and resulted in the lowest bonding requirements. Scenario A does however result in some negative impacts to a couple of the systems in terms of total cost of capital over baseline. Specifically, RRVWSP and NAWS are expected to have increase increased total cost of capital over the baseline scenario. This is a key consideration in the successful implementation of Scenario A.

Figure 5.15 – Total Local Cost of Capital (NPV) Compared to Baseline - Scenario A

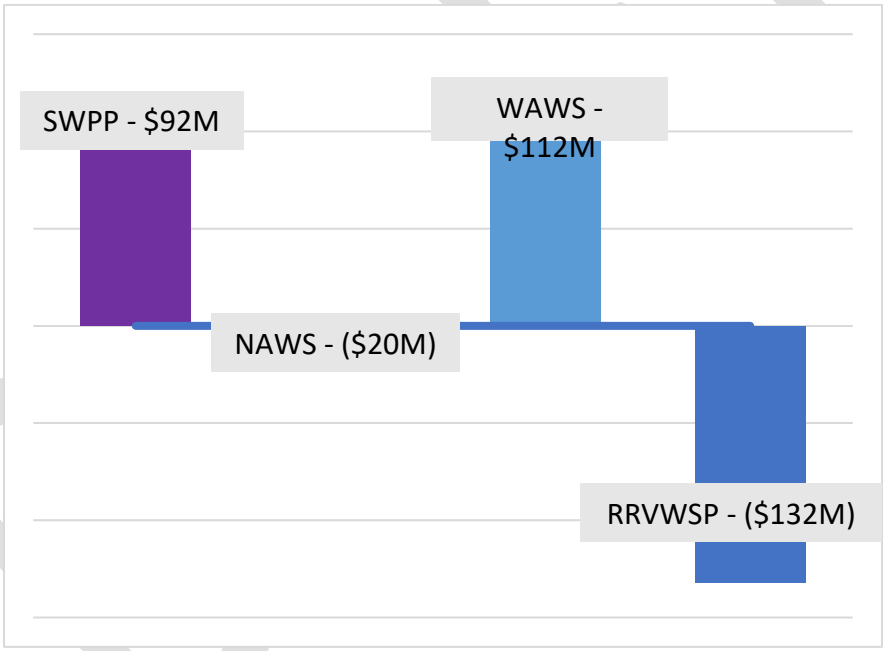
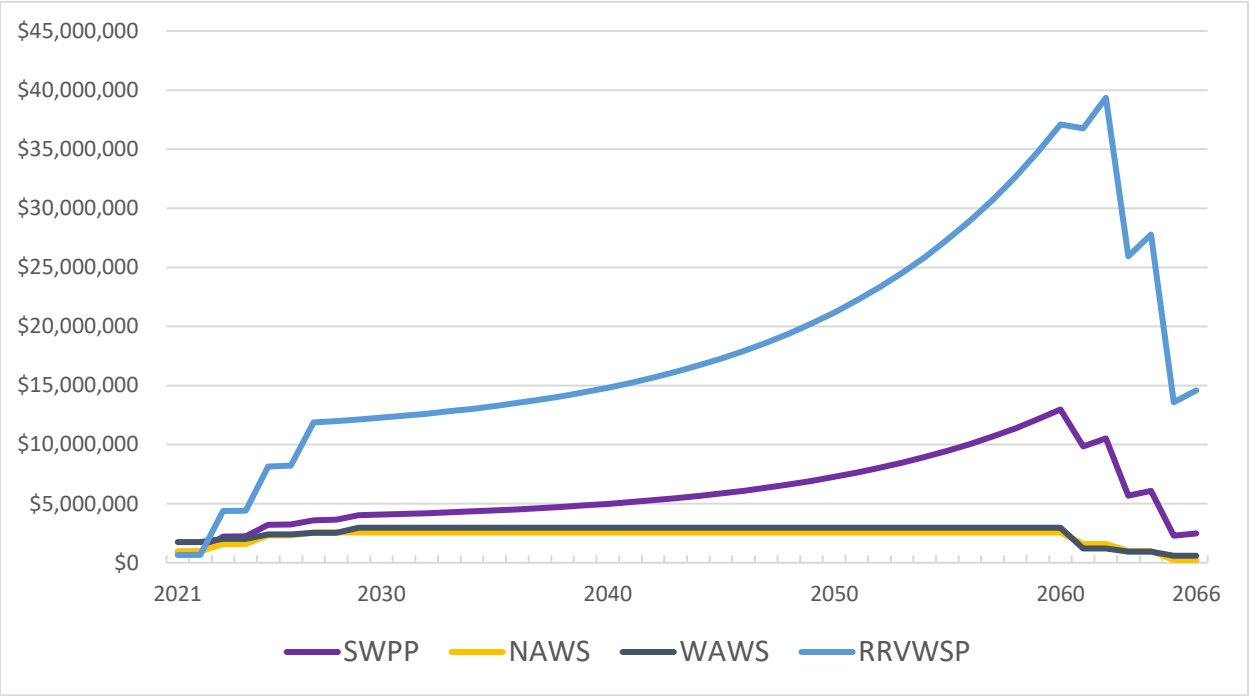


Figure 5.16 – Scenario A Annual Local Cost of Capital Outlay by System



5.1.3.6 Financial Scenarios Analysis – Scenario A Implementation Considerations and Federal Infrastructure Investments

While many of the scenario assumptions utilized could be applied in slightly different ways, the overall approach and results of Scenario A appear to meet the financial goals and objectives of the State for this analysis. As noted, the key challenge with the implementation of Scenario A will be securing the full local buy-in from all participants.

While two of the projects (SWPP and WAWS) resulted in lower total costs to local users, two of the projects (NAWS - $20 million NPV below baseline and RRVWSP - $132 million NPV below baseline) resulted in higher total local user costs over the life of repayment. The total cost impact is somewhat mitigated, however, by the timing of repayment lowering the cost of capital in future through the proposed shaped debt terms. With federal funding becoming available for water infrastructure investments, the state has unique opportunity to potentially mitigate and gain local consensus for Scenario A. Through the utilization of federal infrastructure investments, there is the opportunity to offset the cost increase for all four systems, thereby maintaining local affordability while still achieving the reduced state cost-share goal. Under this approach it is proposed that RRVWSP would receive a one-time capital infusion of $153M at the local level to offset Scenario A impacts to the system. Similarly, it is proposed that NAWS would receive a one-time local capital infusion from federal infrastructure funds of $22M.

In addition to the outlined benefits of Scenario A above, the primary benefits of investing federal funds in this manor include:

- Provides a pathway for the State to migrate to a lower 65% cost-share with all four systems and ensures the sustainability of the RTF long-term.
- Reduces overall cost of capital and financing needs of impacted projects from the reduced state cost-share (see figure 5.17).
- Maintains local affordability for all four major water supply systems.

With this infusion at the local level, the systems would be held harmless from any changes over the entire course of the projects as currently laid out and NAWS and RRVWSP would save up to $2 million and $11 million annually, respectively (see Figure 5.18 and Figure 5.19). Additional benefits may be realized through the flexibility the federal infrastructure investment would offer to the two systems, but the analysis held consistent the other variables to provide the closest comparison possible.

Table 5.11 – Summary of Projected Annual Cost of Capital at Project Completion (2021$)

Projected Annual Cost of Capital per Kgal at Project Completion (2021$)			
	Baseline	Scenario A + Federal	Scenario A
SWPP	$2.00	$1.40	$1.40
NAWS	$0.89	$0.76	$1.11
WAWS	$2.09	$0.56	$0.56
RRVWSP	$0.87	$0.50	$0.72

Table 5.12 – Summary of Projected Peak Annual Cost of Capital (2021$)

Projected Annual Cost of Capital per Kgal at Peak Annual Cost (2021$)			
	Baseline	Scenario A + Federal	Scenario A
SWPP	$2.00	$1.85	$1.85
NAWS	$0.89	$0.76	$0.97
WAWS	$2.38	$0.63	$0.63
RRVWSP	$0.87	$0.59	$0.83

Figure 5.17 - Total Local Cost of Capital (NPV) Compared to Baseline - Scenario A + Federal

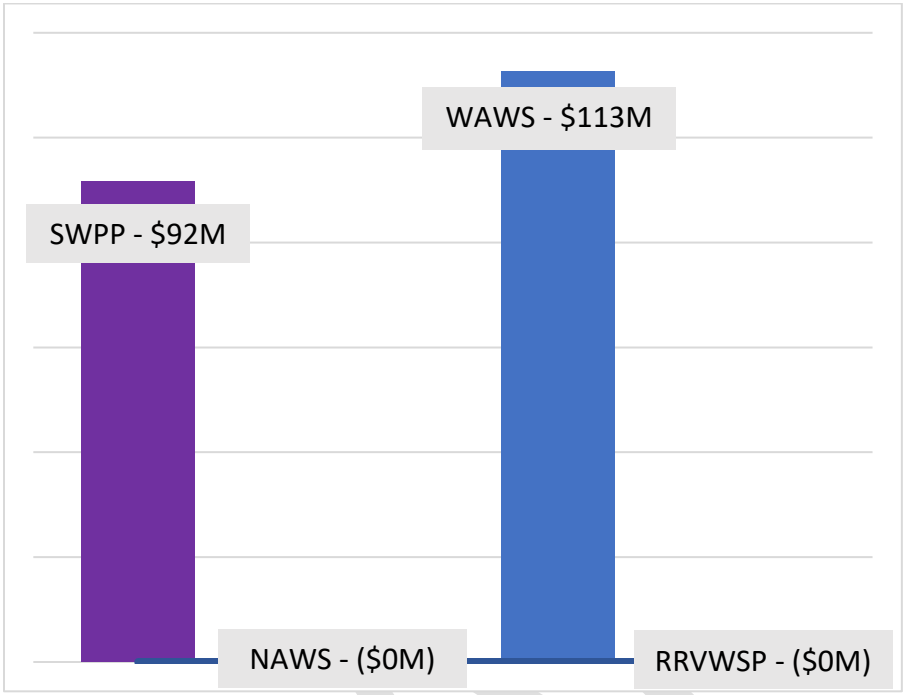


Figure 5.18 - Projected Annual Local Cost of Capital for NAWS with Federal Scenario

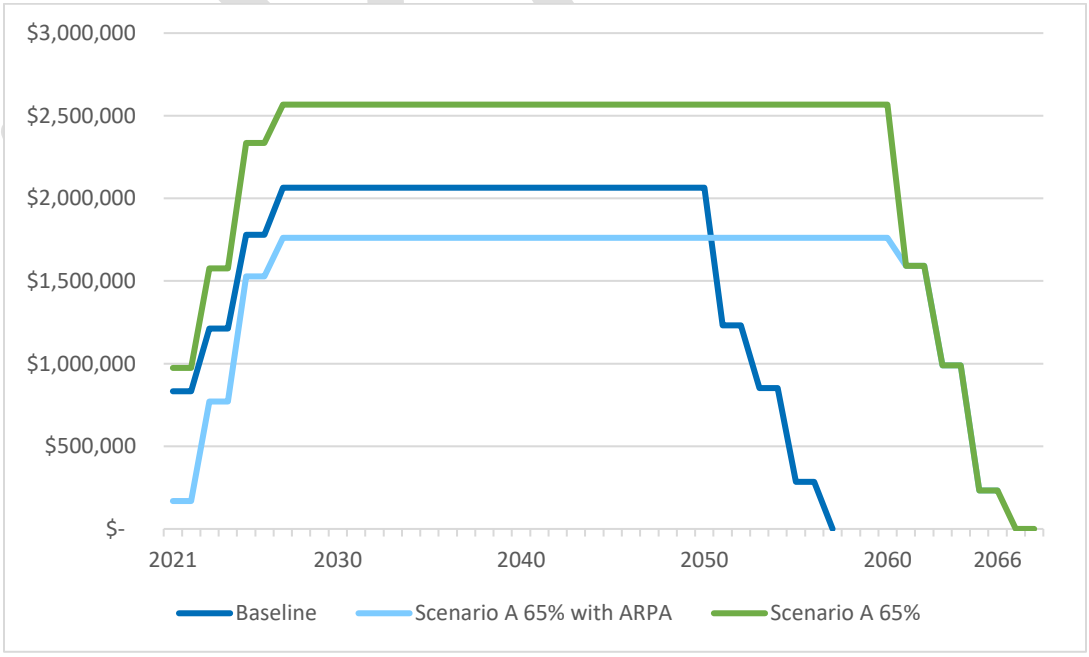
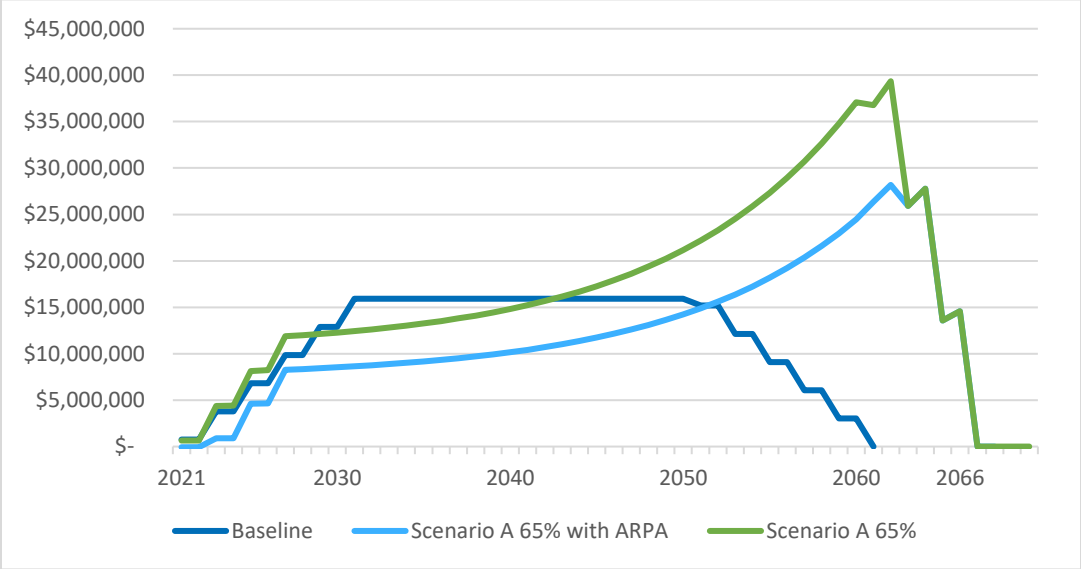


Figure 5.19 - Projected Annual Local Cost of Capital for RRVWSP with Federal Scenario



5.2. Ownership and Governance Model Change Analysis

Table 5.13 – Overview of Current Governance Structure

	Southwest Pipeline Project (SWPP)	Northwest Area Water Supply Project (NAWS)	Western Area Water Supply (WAWS)	Red River Valley Water Supply Project (RRVWSP)
System Type	Wholesale and Rural Retail: Primary Potable Supply	Wholesale: Primary Potable Supply	Domestic and Industrial Wholesale: Primary Potable Supply	Wholesale: Supplemental / Emergency Raw Water
Ownership	SWC (State)	SWC (State)	WAWSA (Local)	GDCD (in consultation and per agreement w/ LAWA) (3rd Party)
Operation	SWA - (SWC transferred Operations and Maintenance to SWA through an agreement. Transfer agreement has provisions for SWC taking over O&M in case of emergency)	SWC (in consultation with NAWS Advisory Committee)	WAWSA	GDCD (in consultation and per agreement w/ LAWA)
Maintenance	SWA - (SWC transferred Operations and Maintenance to SWA through an agreement. Transfer agreement has provisions for SWC taking over O&M in case of emergency)	SWC (in consultation with NAWS Advisory Committee)	WAWSA	GDCD (in consultation and per agreement w/ LAWA)
Rate Setting	SWC and SWA - SWC specifically approves the Capital Repayment and REM rate. Other water rate indirectly approved through the approval of the annual budget.	SWC (in consultation with NAWS Advisory Committee)	WAWSA (with input from the ND Industrial Commission on industrial rate reimbursement to member entities)	GDCD (in consultation and per agreement w/ LAWA)
Primary State Regulatory Oversight	SWC	SWC	ND Industrial Commission	SWC

CRITERIA DESCRIPTIONS:

- **Ownership:** The party responsible for ownership, management, and administration of the project.
- **Operation:** The party responsible for operating the project.
- **Maintenance:** The party responsible for maintaining the project.
- **Rate Setting:** The party responsible for establishing the payments for water service to be paid by water user entities for purchase of water from the project.
- **Primary State Regulatory Oversight:** The state entity chiefly responsible for providing regulatory oversight of the regional water system.

Table 5.13 summarizes the current governance structure of the four major regional water systems. While each system type is inherently unique, when comparing the high-level governance criteria, the inequitable nature between the projects is highlighted in multiple areas. The study addresses several of these primary areas regarding ownership, operations, and maintenance and local financial considerations through both the financial analysis highlighted above and a governance screening analysis that follows. Beyond these analyses, a few key differences and potential areas of inequity that can be highlighted from Table 5.13 include:

- **System Type:** Each system in their own way provides uniquely different levels of service both in terms of the level of infrastructure being provided and the type of service being provided (Wholesale vs. Retail, Primary Potable vs. Emergency/Supplemental, etc.). These are unique considerations when looking at potential changes in governance for each project.

- **Primary State Regulatory Oversight:** In addition to the screening analysis, unique consideration should be given to address the potential inequitable nature of having the Primary State Regulatory Oversight being a different government body than the other three systems. This difference in oversight with different regulators has the potential to create further inequities between systems in the future.

5.2.1 Summary of Pros and Cons of Governance Models

The Study Team was asked to provide input on the four potential governance models identified for consideration in this study: State Ownership, Local Ownership, 3rd Party Public Entity Ownership, and Privatization. The input received was consolidated into pros and cons to begin analyzing themes and consider additional criteria for consideration. Below are the results of the compilation of input on each governance model.

5.2.1.1 State Ownership

State Ownership refers to a project that is constructed, financed, operated, and owned by the state, such as in the case of SWPP and NAWS.

Pros	Cons
• State involved in key decision points regarding Project progress and prioritization • Consistent policies and criteria can be applied for different projects • State maintains control after large contribution of state dollars • May provide better awareness of state funding priorities/needs	• Ongoing conflicts with state serving as both the regulatory and funding agency • Operational decisions / prioritization of project needs may be best suited for local level authorities • Ongoing obligation for state to fund project needs beyond initial capital cost-share • Staffing requirements create on-going obligation at the state level • Potential for geographic inequities regarding state resources • May create lack of engagement, input, and accountability from local stakeholders • Legislative consensus on State Ownership of large projects may be lacking

5.2.1.2 Local Ownership

Local Ownership refers to a project that is constructed, financed, operated, and owned locally by a public entity directly in charge and benefitted by the project either through an established political subdivision or through other options like a Joint Powers Agreement or a Water Supply Commerce Authority. WAWS is the closest regional project to a locally owned water supply project through the Authority and Members (five water systems).

Pros	Cons
• Long-term operational decisions / prioritizations driven by stakeholders with a passion / need for the project • Local cost-share requirements drive accountability when making capital investment decisions • Would centralize staff closer to the benefiting users with staff costs paid through local resources • May provide better understanding of on-going project needs • Local financing flexibility / access to broader set of financing alternatives	• Could reduce buy-in and overlook state-wide significance if seen as a local project of one community (ex. "Fargo project") • Local project owners may be more likely to overestimate benefits and underestimate risks of certain project investments or needs • Local project owners may have an increased reliance on private consultants for technical expertise

5.2.1.3 3rd Party Public Entity Ownership

3rd Party Public Entity Ownership refers to a project that is constructed, financed, operated, and owned by a public entity established that may not be directly tied to the local political subdivisions it provides water to. RRVWSP has a proposed governance model that established the GDCD as the 3rd Party Public Entity. GDCD will provide water on behalf of LAWA (35 water systems) and will operate as a wholesale utility providing raw water supply to the individual members of LAWA.

Pros	Cons
• Assigns control and places focus to an entity fully concentrated on water supply and removed from influence of other state or local priorities/needs • Potential administration and operational efficiencies across projects if same agency employed across multiple projects in similar geography (ex. GDCD operations of multiple project facilities in proximity – RRVWSP WTP, Snake Creek Pumping Plant, NAWS WTP, etc.)	• Could reduce buy-in from legislature to cost-share if seen as not a state or local project or priority • Could reduce buy-in if governance does not contain a significant local or state presence in decision making • Likely need to create new entity or additional scope for an existing government entity (i.e. Garrison Diversion)

5.2.1.4 Privatization

Privatization refers to a project that is constructed, financed, operated, and owned by a private entity. Privatization is not a tested model in the state. The Fargo-Moorhead Area Diversion is a similarly constructed, financed, and operated project to a regional water supply project that could provide inputs regarding risk transfer, risk mitigation, and cost certainty potential through additional study into its Public-Private Partnership (P3).

Pros	Cons
• Operational decisions/prioritizations/staffing decided by those with a clear direction and direct financial/contractual responsibility for the Project • Potential for risk transfer, schedule certainty, and cost certainty on capital, operations, and maintenance • More fully developed risk analysis where private investment is occurring • Potential outside, private expertise brought into the state	• Potential for reduced (or appearance of reduced) transparency • Could reduce local engagement if seen as privatization and not a publicly controlled project • Decisions could run counter to local needs/priorities • Risk transfer and value for money pricing potentially higher than other models considered • Still likely to require state oversite to protect rate payers (i.e. Public Service Commission)

5.2.2 Governance Model Screening Analysis

Upon analysis of the pros and cons developed from input by the Study Team, several common themes evolved. These common themes led to two primary questions on the potential for a change in governance for any of the four systems. The first question was whether the four governance models identified were all worth additional consideration. Second, there was recognition that any migration of governance models could be a monumental undertaking for an established project system and so a further analysis was required to determine if the migration was worth the effort and what the financial impact of the migration would be.

The screening analysis was created to measure the potential migration of the four regional water supply projects to one of the alternative governance models against a set of criteria. The criteria were developed based upon the common themes of the pros and cons input in addition to other state policy considerations and affordability factors.

The screening analysis utilized the financial analysis to develop key assumptions to measure the impact and effort to migrate to and from a State and Local Ownership model. The baseline established in the financial analysis is carried forward in the criteria on the Cost of Capital for both state and local entities. This baseline is based off the current relationship of SWPP and the SWC where if each project is to become state owned, they would migrate to a capital repayment structure consistent with the SWPP If locally owned, it is assumed the projects would migrate cost-share under a scenario similar to Scenario A.

In addition to the ability to meet the criteria, a weighting factor was applied to each evaluation criteria based off the primary goals and objectives of the study related to efficiency of the state's limited financial resources, affordability for local users, and general difficulty or level of effort of to migrate models under each of the criteria.

To score the analysis, a stoplight analysis was performed to rate each criterion against the baseline and governance migration scenarios. This rating was then multiplied by the weighting factor. The sum of all seven criteria were then totaled for a score.

Table 5.14 – Screening Analysis: Changing Governance Models

Rating (measuring impact from/effort to migrate ownership): High (-1) 🔴 Medium (0) 🟡 Low (1) 🟢

	Evaluation criteria	Need Changes to State Law	State Cost of Capital	Local Cost of Capital	Gaining Consensus of Governing Parties	Timeline to Implement	Ongoing Litigation Considerations	New System Resources and Staffing	Ability to Meet Overall Policy Objectives	SCORE (Weighting Factor x Rating)
	Weighting Factor (1-5)	1	5	5	4	2	4	3	3	
SWPP	***Maintain*** State Ownership	🟢	🟡	🔴	🟡	🟢	🟢	🟢	🟡	**5**
	Migrate to Local Ownership	🟡	🟢	🟢	🟡	🟡	🟢	🟡	🟢	**17**
	Migrate to 3rd Party Public Entity Ownership	🟡	🟢	🟢	🔴	🔴	🟢	🔴	🟢	**8**
	Migrate to Privatization	🔴	🔴	🔴	🔴	🔴	🟡	🟢	🔴	**-17**
NAWS	***Maintain*** State Ownership	🟡	🔴	🔴	🟡	🟡	🟢	🟢	🟡	**-3**
	Migrate to Local Ownership	🟡	🟢	🟡	🔴	🟡	🔴	🟡	🟢	**0**
	Migrate to 3rd Party Public Entity Ownership	🟡	🟢	🟡	🔴	🟡	🔴	🟢	🟢	**3**
	Migrate to Privatization	🔴	🔴	🔴	🔴	🔴	🔴	🟢	🔴	**-21**
WAWS	Migrate to State Ownership	🟡	🔴	🔴	🔴	🟡	🔴	🔴	🔴	**-24**
	Maintain Local Ownership	🟢	🟡	🟢	🟢	🟢	🟢	🟢	🟡	**19**
	Migrate to 3rd Party Public Entity Ownership	🟡	🟡	🟢	🔴	🔴	🔴	🟡	🟡	**-5**
	Migrate to Privatization	🟡	🔴	🔴	🔴	🔴	🟡	🟢	🔴	**-16**
RRVWSP	Migrate to State Ownership	🟡	🔴	🔴	🟡	🟡	🟢	🔴	🟡	**-9**
	Migrate to Local Ownership	🟢	🟡	🟡	🟡	🟡	🟢	🟡	🟢	**8**
	Maintain 3rd Party Public Entity Ownership	🟢	🟡	🟡	🟡	🟢	🟢	🟢	🟢	**13**
	Migrate to Privatization	🔴	🔴	🔴	🔴	🔴	🔴	🟢	🔴	**-21**

Rating (measuring impact from/effort to migrate ownership): High (-1) 🔴 Medium (0) 🟡 Low (1) 🟢

Table 5.15 – Screening Analysis Evaluation Criteria

Criteria	Weighting Factor	Additional Detail
Need Changes to State Law	1	The SWC derives its powers from state law. The powers given to the SWC in relation to SWPP and NAWS are entangled throughout the ND Century Code. Even in cases of regional water supply systems that are not owned and operated by the SWC, funding and cost-share policies are often dictated by specific state law. Any changes in governance by one of the systems will likely require changes to state law to some extent. The extent of changes needed from different migrations vary, but the transfer to or from a public entity is already established in current law and so it is within the power of the state to make modifications. As changes of state law relate to privatization of an otherwise public utility, there are potentially additional legal factors that make state law more complex.
State Cost of Capital	5	The financial analysis performed in this study details the fiscal impact of changing governance systems under the constructed scenarios and its effect on the limited availability of state resources. The affordability for the state is a top priority of this study and of the screening analysis. A key assumption of the comparative analysis utilized in this report was to utilize SWPP as the model to compare State Ownership with other governance models.
Local Cost of Capital	5	The financial analysis performed in this study details the fiscal impact of changing governance systems and its effect on the affordability to the local users. A key assumption of the comparative analysis utilized in this report was to utilize SWPP as the model to compare State Ownership with other governance models.
Gaining Consensus of Governing Parties	4	The ability to migrate to a new form of governance requires the consensus of both the party being migrated from and the party being migrated to. Governing party stakeholders related to ownership and governance in this instance include the local water supply entity, any sub-member systems, the SWC, the Governor's office, and the Legislature, Federal participation in the existing project is also a key consideration. There are numerous variables that impact the ability to gain consensus across all of these stakeholders, but the involvement of the federal government or a non-public entity are valued as a higher level of effort to gain consensus.
Timeline to Implement	2	The ability to migrate is impacted by the length of time to implement the changes. While the timeline is not a primary variable, it is a consideration. The level of impact on the ability to migrate to a new governance is, similar to consensus, complicated by the involvement of any new parties and the complexity of the transaction including new laws, asset transfers, new agreements, federal participation, dissolving old agreements, etc.

Ongoing Litigation Consideration	4	Litigation has played a major role in the development of regional water supply projects. There are multiple ongoing litigation concerns with other states and Canada. Understanding how a potential governance change would impact ongoing litigation and potentially litigation already resolved under a prior governance structure will be key to understanding if the transfer to a new entity can be accomplished without significant strain on resources.
New System Resources and Staffing	3	The ability to stand up a new form of governance, including the ongoing budget commitment to hire and retain staff, is essential to a successful migration. Without the ability to meet this requirement, migration would not be possible. This is not considered to be a large hurdle to overcome, but there are financial implications to consider.
Ability to Meet Overall Policy Objectives	3	The ability to meet the overall policy objectives of the governance and finance study of regional water supply systems in North Dakota, including equity between systems and balanced state and local project governance, authority, infrastructure ownership, responsibility, accountability, and cost-share.

5.2.2.1.1 Screening Analysis: Results and Conclusions

Generally, the screening analysis attempted to answer the question *is 'it a good idea and is it worth it?'* to migrate to an alternative governance model. The results of the screening analysis were useful in helping answer these two primary questions raised during the review of the pros and cons of the four governance models.

The first step in determining if there were any clear results or straightforward conclusions is to first look at the four governance models themselves and how they generally met the criterion. The second step is then to consider each project individually and how it scored, with special attention to how the baseline, or status quo, performed against the remaining potential governance models.

5.2.2.1.1.1 Results and Conclusions: Governance Models

State Ownership. As a governance model, State Ownership had a wide varying scoring between (-24) and 5. The wide variance was greatly influenced by the baseline ownership of the project being screened. Generally, if the project is already in State Ownership, it scored better. Conversely, it scored very low in considering migrating from a local ownership to State Ownership, due largely impart to the cost implications to change the cost-share and repayment model from both a state and local perspective.

Local Ownership. As a governance model, Local Ownership scored between 0 and 19. This governance model scored strongest with SWPP and with WAWS, which WAWS already has a baseline of Local Ownership. Local Ownership did not score as highly when considering it against a baseline of a 3rd Party Public Entity Ownership, like RRVWSP. Generally, Local Ownership saw a lot of benefits when migrating from a State Ownership due to the results of the financial analysis.

3rd Party Public Entity Ownership. As a governance model, 3rd Party Public Entity Ownership scored between (-2) to 13. This governance model, while very similar to Local Ownership, had a clear conclusion when considering migration from another governance model. Generally, unless there is an already established 3rd Party Public Entity available to the project, migrating to this form of governance is difficult and did not score as well as transferring to a Local Ownership.

Privatization. As a governance model, Privatization did not score well against the criterion and resulted in a score between (-21) and (-2). There may be some potential benefits gained in transferring risk and gaining cost certainty from migrating to a Privatization ownership, however cost of capital is likely higher. Also, the generally untested nature of Privatization in the state greatly reduced its score due to the difficulty in modifying NDCC to address a private utility. Gaining consensus from the current public entity owner and the local users is also seen as a large barrier to the concept of Privatization.

5.2.2.1.1.2 Results and Conclusions: Potential Governance Migration

Southwest Pipeline Project. The analysis of governance models to the SWPP baseline resulted in a positive score in all scenarios except Privatization. This suggests that the governance of SWPP has been successful, but the future affordability of the current relationship between local users and the state into the future would benefit from a change in governance. While there are certain positives in maintaining the baseline governance scenario, the financial analysis of both state and local affordability was the prime driver of the higher score to migrate SWPP to a Local Ownership. Without a logical 3rd Party Public Entity already established, the barrier for that scenario would make implementation a much greater effort than exploring a Local Ownership governance model.

Northwest Area Water Supply. The analysis of NAWS showed only one governance model with a positive score. A 3rd Party Public Entity Ownership, such as Garrison Diversion, scored the highest. These results suggest that because NAWS is not as mature of a system as SWPP, that there would be a lower level of effort needed to migrate away from State Ownership. It also assumes that a 3rd Party Public Entity, like Garrison Diversion, would be able to assume ownership. Even with a positive score, 3rd Party Public Entity did not score high when compared to others in the screening analysis. Additional consideration related to ongoing litigation and the potential for some level of ongoing state involvement to mitigate legal concerns should also be considered to lower the level of effort and impact from migration.

Western Area Water Supply. The screening analysis to compare the WAWS baseline against potential migration to another form of governance resulted in only one positive result, which was to maintain the project under Local Ownership. Attempting to migrate to another form of governance would have negative affordability concerns for the state and local users. In addition, the effort to migrate away from Local Ownership would be high and potentially run into additional

barriers. Another factor to note is that WAWS was unable to achieve a positive criteria score in its Ability to Meet Overall Policy Objectives due to the regulatory oversight inequities identified in Table 5.13.

Red River Valley Water Supply Project. The screening analysis for RRVWSP showed that the existing baseline of a 3rd Party Public Entity Ownership scored the highest. In analyzing migrating to a Local Ownership, it also resulted in a positive score. While there may be additional benefits from the involvement similar to Local Ownership, which benefits from consultation with LAWA, the screening analysis did not score it as high as continuing the 3rd Party Public Entity Ownership governance model.

6. RECOMMENDATIONS AND MIGRATION CONSIDERATIONS

6.1.1 Recommendations of Governance Changes

The Strategic Governance and Finance Study focused on the four major regional water systems in North Dakota, SWPP, NAWS, WAWS, and RRVWSP. Through the comprehensive financial and governance screening analyses the study took into consideration numerous factors, including:

- Current Governance Model
- State and Local Cost of Capital
- Efficient Use of State Resources
- Local Affordability
- Alternative Delivery Models
- Legal Authorities
- Historical SWC Cost-Share Policy
- Equity and Consistency Amongst Systems
- Legislative and Agency Consensus
- Ability to Implement

The analyses of these factors show additional benefit to the four major regional water systems could be achieved from consideration of governance and finance changes to each. To achieve a more equitable governance and finance framework and an equitable sharing of resources, the study puts forward the following recommendations:

- **Implement the assumptions and variable selections in Scenario A in Section 5.1.3.3.1** for each of the four identified water supply projects, including:
    - **Capping state cost-share at 65%** to ensure the long-term sustainability of the RTF. Scenario A indicated that this reduction in cost-share as modeled would reduce the state's overall share for the four major water supply projects by nearly $350 million.
    - **Restructuring of historic cost-share** to provide more comprehensive equity across all four of the major water supply projects by adjusting future cost-share applications across the next three biennia. This adjustment would come in the form of a temporary cost-share reduction or credit dependent upon overall current project cost-share levels relative to the 65% benchmark to achieve the desired overall balance between projects. Due to the heavy existing debt load of WAWSA, it is recommended that their restructuring adjustment be applied to existing debt as part of a refinancing approach with the oldest debt being retired first. The following represents the currently estimated restructuring amount for each system:

- SWPP: ($93 million)
- NAWS: ($24 million)
- WAWS: $37 million
- RRVWSP: ($13 million)

  - **Eliminating the current capital repayment requirements for SWPP** to the RTF;
  - **Make state financing available for all future local project costs associated with the local cost-share requirements.** To mitigate affordability concerns from reduced state cost-share, it is recommended that the state utilize the maximum flexibility in the Water Infrastructure Revolving Loan Fund to provide for longer repayment terms for long-life infrastructure assets and flexible debt shaping to provide generational equity amongst current and future users. Allow for existing debt to be refinanced into this program by the four regional systems.
  - **Modernizing the cash management approach of the RTF** to provide flexibility of state cost-share and minimize the utilization of future bonding or LOC needs.
  - **Accelerating project implementation** where appropriate to minimize project delivery and indexation risks. Given the scale of the RRVWSP, the analysis showed that the acceleration of this project to a three biennia delivery vs. the currently planned five biennia schedule would provide maximum benefits to the RTF and driving down local cost of capital concerns from the reduced state cost-share.
  - To make up for projected revenue shortfalls in the RTF as a result of project acceleration strategy proposed, it is recommended the state **pursue a bonding or LoC strategy similar to that of which was legislatively approved for the Fargo-Moorhead Area Diversion project**. A primary difference is that the analysis of Scenario A showed future RTF revenues could be made available to offset the repayment requirements of the Legacy Fund earnings under this approach. The projected borrowing requirements under Scenarios A total approximately $380 million across the next three biennia.

- **Migrate SWPP from State Ownership to a Local Ownership model** with appropriate local governance changes as indicated in the migration considerations section below;

- **Migrate NAWS ownership from State Ownership to 3rd Party Ownership** for inter-basin, raw water supply elements. **All local potable supply, treatment, and transmission transferred to Local Ownership** under a new governance authority/board.

- **Maintain RRVWSP's 3rd Party Public Entity Ownership** and combined local governance for inter-basin supply, while **developing future in-basin transmission assets with local ownership/governance**.

- **The migration of oversight of WAWS from the Industrial Commission to the SWC**;

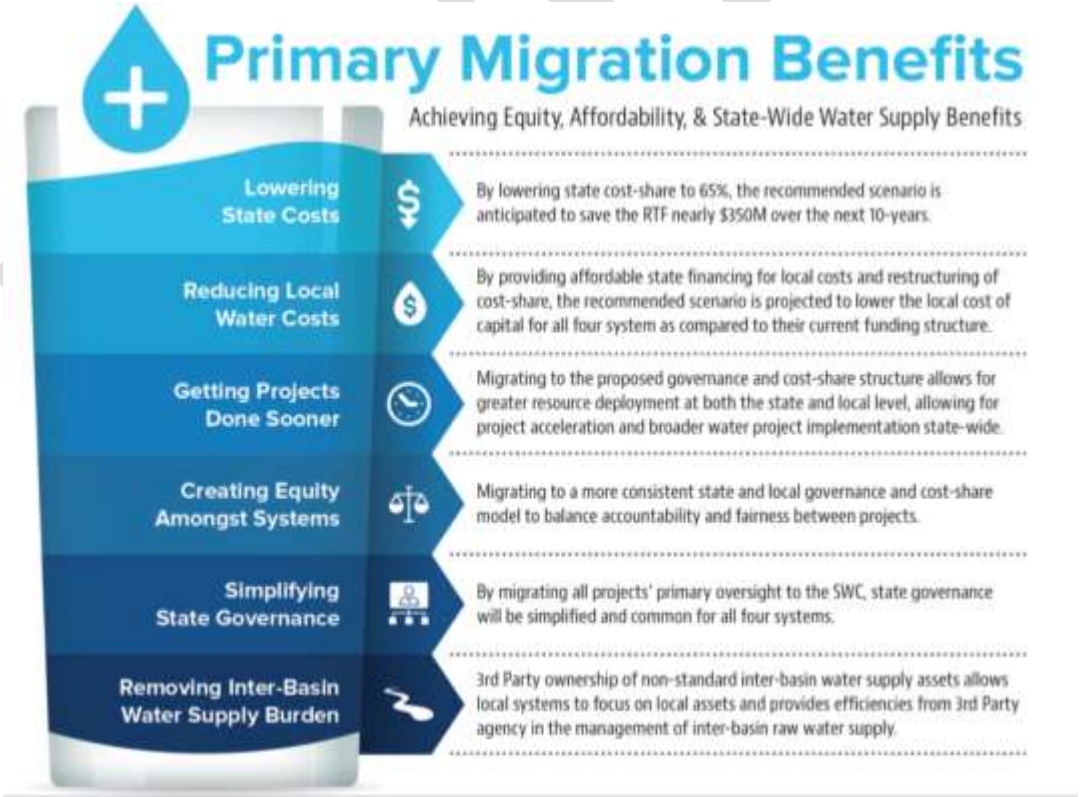
- **Allow for local control by WAWSA of industrial revenues by the regional systems**; and

- The near-term **investment of approximately $170 million in federal infrastructure funds** in order to achieve local affordability for all four systems while maintaining the benefits shown in Scenario A, including capping the state's cost-share at 65%.

6.1.2 Primary Migration Benefits

Implementing the migration considerations outlined is expected to result in multiple benefits to the state and the four major regional water systems. Figure 6.1 highlights the primary benefits that are expected to be realized.

Figure 6.1 – Primary Migration Benefits from Study Recommendations



6.1.3 Migration Considerations to Implement Recommendations

6.1.3.1 ***Southwest Pipeline Project***

SWPP – Summary of Recommendations

- **Ownership Migration:** Migrate ownership of from State Ownership to Local Ownership.
- **Eliminate Capital Repayment:** Eliminating Capital Repayment provides immediate local funding/financing flexibility to the project.
- **Local Share Funding Structure:** Make state financing available for all future local project costs allowing for 40-year repayment term, 2% interest rate, and debt shaping with flexible principal and interest return requirements. Estimated to save an NPV of nearly $84M over the 45-year modeled scenario.
- **Restructure Cost-Share Approach:** To achieve cost-share equity at a 65% level, adjust future cost-share applications across the next 3 biennia for SWPP to receive a restructuring deduction totaling $93M.
- **Development of a Local Authority:** Establish local governance with appropriate cross-section representation and balanced voting authority.
- **Maintain Staffing Expertise:** Provide for continuation of staffing and benefits to current SWPP staff at a local level.

6.1.3.1.1 Governance Migration and Changes to State Law

The SWC derives its power to construct, operate, and maintain the SWPP from Chapter 61-24.3 of the ND Century Code. The ND Century Code also authorizes the Southwest Water Authority to cooperate and contract with the SWC to promote the establishment, construction, development, or operation of the SWPP. See NDCC Chapter 61-24.5.

Modifications to SWPP's ownership structure would require changes to Chapter 61-24.3 and Chapter 61-24.5 of the NDCC, respectively. A high level of consideration would need to be given to the local entity charged with new ownership of the SWPP. Chapter 61-24.3 of the NDCC would be amended, in accordance with the procedure described above, to create a pipeline authority, a political subdivision of the state, to exercise the powers authorized by the statute. The pipeline authority may consist of participating political subdivisions located within SWPP service areas, such as those currently comprising the Southwest Water Authority, which enter into water contracts with the pipeline authority. A board of directors, comprised of a director from each represented political subdivision, would be established as the governing body of the SWPP.

In general, the pipeline authority may have powers that include, but are not limited to:

- Construct the SWPP.
- Operate and maintain or provide for the operation and maintenance of the SWPP.
- Exercise all express and implied rights, powers, and authorities, including all powers and authorities granted in Chapter 61-02 of the ND Century Code.
- Make and enforce orders, rules, and bylaws for the operation and maintenance of the SWPP.
- Sell, transfer, or exchange property acquired for the SWPP in accordance with Chapter 61-24.3 of the ND Century Code.

6.1.3.1.2 Scenario A Funding and Financing Changes for SWPP

The results of the financial analysis for Scenario A shows many fiscal benefits for SWPP. The results of the restructuring in Scenario A eliminate SWPP capital repayment requirement and provide access to low-cost financing, which is projected to save an NPV of nearly $84 million dollars locally over the modeled capital repayment requirements across the next 45 years. A key near-term benefit is that the capital repayment would be temporarily reduced to zero until the time of their first formal cost-share request for future projects under the new project funding structure.

The low-cost financing from the state for the local costs is proposed under Scenario A to provide a 40-year repayment term, 2% interest rate, and debt shaping with flexible principal and interest return requirements to balance affordability between existing and future users.

6.1.3.2 Northwest Area Water Supply Project

NAWS – Summary of Recommendations

- **Ownership Migration:** Migrate ownership from State Ownership to 3rd Party Ownership for inter-basin, raw water supply elements. All local potable supply, treatment, and transmission transferred to Local Ownership under new governance authority/board.
- **Restructure Cost-Share Approach:** Receive a restructuring deduction totaling $24M.
- **Local Share Funding Structure:** Make state financing available for all future local project costs allowing for 40-year repayment term, 2% interest rate, and debt shaping with flexible principal and interest return requirements.
- **Federal Infrastructure Investment:** Utilization of a one-time federal investment of $21M to maintain local affordability while still achieving the reduced state-cost share goal of 65%.
- **Develop Governing Board:** Opportunity to empower local representation and authority.
- **Maintain Staffing Expertise:** Provide for continuation of staffing and benefits to current NAWS staff at a 3rd Party and local level.

6.1.3.2.1 Governance Migration and Changes to State Law

The SWC derives its power to construct, operate, and maintain NAWS from Chapter 61-24.6 of the ND Century Code. The SWC constructs, operates, and manages in consultation with the NAWS advisory committee. See NDCC § 61-24.6-02.

Modifications to the NAWS ownership structure would require changes to Chapter 61-24.6 of the ND Century Code. Chapter 61-24.6 of the ND Century Code would be amended, in accordance with the procedure described above, to transfer the responsibilities of the SWC to a 3rd Party Public Entity for inter-basin, raw water supply elements. All local potable supply, treatment, and transmission could be migrated to Local Ownership. The continued involvement of the NAWS advisory committee, like the involvement of LAWA with Garrison Diversion, in proving additional support of decision making by the 3rd Party Public Entity. Conversely, the possibility exists that the political subdivisions that are currently part of the NAWS advisory committee could form the Local Ownership, with each political subdivision represented and electing a director to serve on the governing board. Elections could be held in the same manner utilized for water users districts.

In general, the 3rd Party Public Entity would have powers that include, but are not limited to:

- Accept funds, property, services or other assistance for the purpose of aiding or promoting development of NAWS.
- Cooperate and contract with the state and its agencies in research or other activities promoting the development of projects to deliver water to northwestern North Dakota.
- Appointment and procure services of engineers, attorneys, and others to assist in the development of a project to deliver water to northwestern North Dakota.
- Exercise powers as necessary to achieve the purposes of the statute.
- Construct, operate, and manage a project to deliver water throughout northwestern North Dakota.

The delegation of the state's responsibilities for NAWS for inter-basin, raw water supply elements, as set forth in the Dakota Water Resources Act of 2000, to a 3rd party public entity could be accomplished through the adoption of the above-described legislation, much like has been done for the RRVWSP. Due to its role described in the Dakota Water Resources Act, the state, as a regulatory body, remains as a backstop for NAWS and can craft its level of oversight involvement for NAWS in the legislation.

6.1.3.2.2 Scenario A Funding and Financing Changes for NAWS

The results of the financial analysis for Scenario A shows many fiscal benefits for NAWS. The results of the restructuring in Scenario A over the next three biennia show NAWS receiving a cost-share restructuring deduction totaling $24 million.

In conjunction with transferring the governance and decision making to a mix of 3rd Party Public Entity and Local Ownership, the state would make available financing of the local costs by allowing access to 40-year repayment, 2% interest rate, and debt shaping with flexible principal and interest return requirements to balance affordability between existing and future users.

However, without the additional federal investment of $21 million detailed in Section 5.1.3.6, Scenario A results in higher total local user costs over the life of repayment for NAWS.

6.1.3.3 Red River Valley Water Supply Project

RRVWSP – Summary of Recommendations

- **Ownership Governance:** Maintain 3rd Party ownership and combined local governance for inter-basin supply, while developing future in-basin transmission assets with local ownership/governance.
- **Restructure Cost-Share Approach:** Receive a restructuring deduction totaling $12.8M.
- **Local Share Funding Structure:** Make state financing available for all future local project costs allowing for 40-year repayment term, 2% interest rate, and debt shaping with flexible principal and interest return requirements.
- **Federal Infrastructure Investment:** Utilization of a one-time federal investment of $149M to maintain local affordability while still achieving the reduced state-cost share goal of 65%.

6.1.3.3.1 Governance Migration and Changes to State Law

The state derived its power to construct, operate, and maintain the RRVWSP in the Dakota Water Resources Act of 2000. The state delegated its responsibilities for the RRVWSP to Garrison Diversion and LAWA in the NDCC. See NDCC Chapters 61-24, 61-39. Due to the state's role described in the Dakota Water Resources Act, the state, as a regulatory body, remains a backstop for the RRVWSP. Modifications to the state's level of oversight involvement for the RRVWSP would require changes to Chapters 61-24 and 61-39.

6.1.3.3.2 Scenario A Funding and Financing Changes for RRVWSP

The results of the financial analysis for Scenario A shows many fiscal benefits for RRVWSP. The results of the restructuring in Scenario A over the next three biennia show RRVWSP receiving a cost-share restructuring deduction totaling $12.8 million.

A significant benefit of implementing Scenario A for the RRVWSP is the acceleration of the project schedule to reduce indexation and implementation risks (such as a near-term drought).

In addition, the state would make available financing of the local costs by allowing access to 40-year repayment, 2% interest rate, and debt shaping with flexible principal and interest return requirements to balance affordability between existing and future users.

To mitigate the total net impacts to RRVWSP users under Scenario A, it is recommended the state consider applying additional federal investment of $149 million detailed in Section 5.1.3.6,

6.1.3.4 Wester Area Water Supply

WAWS – Summary of Recommendations

- **Ownership Governance:** Maintain existing WAWS ownership, but to achieve an equitable state regulatory oversight, migrate primary oversight from the ND Industrial Commission to the ND State Water Commission.
- **Local Share Funding Structure:** Make state financing available for all future local project costs allowing for 40-year repayment term, 2% interest rate, and debt shaping with flexible principal and interest return requirements. Migrate existing state backed loans to local financing and refinance into modified state loan program.
- **Restructure Cost-Share Approach:** Receive a restructuring credit totaling $37M adjustment to be applied to the oldest debt first to fully satisfy those loans and ensure the term of the loan did not surpass the useful life of the asset.

6.1.3.4.1 Governance Migration and Changes to State Law

The WAWSA derives its power to construct, operate, and maintain the WAWS from Chapter 61-40 of the ND Century Code. The Industrial Commission has oversight of WAWSA's authority for industrial water sales. See NDCC Chapter 61-40.

Modifications to the Industrial Commission's oversight authority would require changes to Chapter 61-40. Chapter 61-40 of the ND Century Code would be amended, in accordance with the procedure described above, to transfer the Industrial Commission's oversight authority to the SWC.

6.1.3.4.2 Scenario A Funding and Financing Changes for WAWS

The results of the financial analysis for Scenario A shows many fiscal benefits for WAWS. The results of the restructuring in Scenario A allows for the system to refinance all existing industrial and domestic debt into the new State financing program. The $37 million restructuring adjustment would be applied to the oldest debt first to fully satisfy those loans and ensure the term of the loan did not surpass the useful life of the asset.

In addition, the state would make available financing of the local costs by allowing access to 40-year repayment, 2% interest rate, and debt shaping with flexible principal and interest return requirements to balance affordability between existing and future users.

7. Exhibits

7.1. Primer on Alternative Delivery and Financing Options